THIS WEEK'S National Petroleum NEWS

Index to Coming Meetings

American Petroleum Institute, Eastern District, Division of Production, William Penn Hotel, Pittsburgh, Pa., April 7.

American Chemical Society, Atlanta, Ga., April 7 to 11.

American Oil Burner Association and National Oil Burner Show, Hotel Stevens, Chicago, April 7 to 12.

The Oil & Gas Well Supply Traffic Association, Hotel Jefferson, St. Louis, Mo., Apr. 8, 9.

Kansas Oil Men's Association, Broadview Hotel Roof Garden, Wichita, Apr. 17, 18.

National Petroleum Association, Cleveland Hotel, Cleveland, O., April 23, 24.

National Oil Scouts Association of America, San Antonio, Tex., May 19, 20.

Natural Gasoline Association of America, Mayo Hotel, Tulsa, May 20, 21, 22.

American Society for Testing Materials, Atlantic City, N. J. June 23 to 27.

National Safety Council, Petroleum Section, Pittsburgh, Pa., Sept. 29 to Oct. 4.

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SIDNEY POWERS, newly elected president of the American Association of Petroleum Geologists, is consulting geologist to the Amerada Petroleum Corp. with which company he has been associated since 1919.

Prior to his present connection Mr. Powers served as geologic officer with the American Expeditionary Forces during the last year of the war. He entered this assignment from the U. S. Geological Survey for which he acted as assistant geologist beginning in 1917. In parts of the years 1916 and 1917 Mr. Powers was with the Producers Oil Co., subsidiary of The Texas Co., at Shreveport.

Mr. Powers completed his undergraduate work at Williams College in 1911. In 1913 he was granted an S. M. degree by the Massachusetts Institute of Technology and in 1915 he took his M. A. and Ph.D. degrees from Harvard. He is the author of a number of geological works published in the Journal of Geology and through the A. A. P. G. and the A. I. M. E. He is a fellow of the Geological Society of America.

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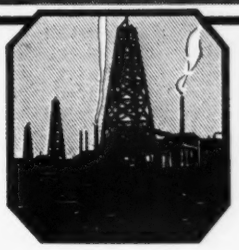

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Vol. 22 **CLEVELAND, March 26** **No. 13**

No Reduction in Crude Run to Stills; Gasoline Stocks Cut Slightly

CLEVELAND, March 25

CRUDE run to refinery stills in this country for the week ending March 22—two weeks after the suggestion of the Federal Oil Conservation Board—do not show any indication on the part of the refining industry as a whole to curtail runs one seventh, as suggested by the board.

Total crude runs for the week ending March 22, according to the figures of the American Petroleum Institute which covers 95 per cent of the operating refineries of the country, were 2,534,900 barrels daily average.

For the week ending March 15, runs to stills were 2,554,000 barrels daily average. The reduction, of less than 20,000 barrels daily average, is a normal variation in the figures from week to week. The week ending March 15 showed a gain of just about that amount over the week before.

Present runs to 'stills are about 50,000 to 75,000 barrels daily average more than runs during the early part of February.

The report of the institute on refinery operations for the period ending March 15 did, however, show a reduction in gasoline stocks held at refineries—the first since last October.

Reporting plants showed 53,830,000 barrels in stocks, as against 53,986,000 barrels the week before, a reduction of 156,000 barrels. This cut in stocks was mostly in the Mid-Continent field on the Gulf Coast. A small reduction was made in stocks at Appalachian plants.

The reduction in gasoline stocks may have been due to either a large increase in shipments, or a decrease in the rate of manufacture of gasoline itself. The institute figures do not give any figures as to current output of gasoline.

One large refining company stated it was achieving its reduction of one-seventh in gasoline manufacture by shutting down its cracking coils and making less cracked gasoline. It said it would keep a sufficient number of cracking coils out of production to accomplish its one-seventh reduction. Existing contracts for fuel oil and gas oil required the plant to charge through its stills almost the amount of crude which had been scheduled prior to the suggestion from the federal oil board.

Crude run to stills for the week ending March 15 for the East Coast district showed a reduction of 32,300 barrels daily average.

There was also a reduction of 20,000 barrels daily average in Louisiana and Arkansas. Although Texas as a whole showed an increase of nearly 10,000 barrels, the Gulf Coast district showed a decrease of 8000 barrels.

The Appalachian; Indiana, Illinois and Kentucky; Oklahoma-Kansas and California districts showed increases.

As far as can be learned from direct inquiry to the governors of the states where refining is an industry of any consequence, these state executives are taking no further steps to bring to the attention of the refiners the necessity, or desirability at least, of their curtailing their crude runs. Most of the governors have called the attention of the refiners to the oil board's statement of March 4. Some of the governors point out there is no legal machinery in their states by which they can take any further action in the matter, even to determining whether or not plants in their states have heeded the oil board's suggestion.

The committee of oil men appointed two weeks ago by Secretary of the Interior Wilbur to make an "unprejudiced analysis of the status of petroleum demand," held a meeting in New Orleans a few days ago in connection with the meeting of the American Association of Petroleum Geologists. Its report to the secretary is expected within a few weeks at the latest. J. Elmer Thomas, geologist, Fort Worth, is chairman of the committee.

Domestic crude production for the week ending March 15 held about to the volume fixed by the proration agreements in the flush areas in Texas, Oklahoma and California. The exact figure was 2,535,900 barrels daily average.

This is 47,000 barrels daily average less than the week preceding, but production was increased just about that amount in that week by flow tests made of the flush pools in Oklahoma for the purpose of fixing the proration percentages for the future. Those tests being finished, output in those districts was cut down by just about the amount it had gained.

Weekly reports to NATIONAL PETROLEUM NEWS of 93 Mid-Continent refiners with a still capacity of more than a half million barrels per day show an increase, the first three weeks of March, in daily average crude runs, of 7052 barrels over February runs and 15,790 barrels daily average over January runs. March runs however were only 64.5 per cent of capacity as compared with about 73 per cent for the country as a whole.

American Petroleum Institute report of refinery operations in the United States for the week ended Mar. 22, compared with the week ended Mar. 15

Districts	Per Cent of Capacity Reporting	Daily Av. Crude Run to Stills Wk. Ended Mar. 22 (Barrels)	Daily Av. Crude Run to Stills Wk. Ended Mar. 15 (Barrels)	Per Cent of Reporting Capacity Operated Wk. Ended Mar. 22	Per Cent of Reporting Capacity Operated Wk. Ended Mar. 15	Stocks Reported in Thousands of Barrels: Gasoline Stocks Mar. 22	Gasoline Stocks Mar. 15	Gas & Fuel Oil Stocks Mar. 22	Gas & Fuel Oil Stocks Mar. 15
East Coast	100.0	442,400	474,700	73.0	78.4	9,266	8,985	6,462	6,457
Appalachian	91.0	80,800	76,400	69.3	65.5	1,828	1,850	657	666
Ind.-Ill.-Ky	99.4	306,800	292,800	85.7	82.5	8,202	8,056	3,024	2,959
Okla.-Kan.-Mo	89.1	298,200	296,800	72.4	72.1	4,583	4,645	3,509	3,393
Texas	90.4	602,500	593,300	84.5	83.2	7,698	8,408	11,549	11,816
La.-Ark	96.8	169,900	189,600	64.8	72.4	2,522	2,563	2,064	2,166
Rocky Mountain	93.6	59,100	63,100	42.4	45.3	3,109	2,945	1,052	1,052
California	99.3	575,200	567,300	64.5	63.6	16,622	16,534	108,936	108,625
Total U. S.	95.5	2,534,900	2,554,000	72.5	73.1	53,830	53,986	137,253	137,134
Texas (Gulf Coast)	99.4	453,800	462,200	86.7	88.3	6,520	7,311	8,917	9,173
La. (Gulf Coast)	100.0	108,100	122,900	73.3	83.3	2,163	2,222	1,222	1,335

Government Files Suit to Test New York-Vacuum Merger

By Telegraph

WASHINGTON, March 24

ALLEGING that the contract of merger executed by the Standard of New York and the Vacuum Oil companies Jan. 10 constituted a contract or conspiracy in restraint of trade and in violation of the decree of dissolution entered in 1909 and supplemented in 1911, the department of justice today at St. Louis, took the first step to test the question whether those two companies are in such competition with each other, in the sale of lubricants and gasoline as to bring them again into court in the old suit. The department declares that the contract constitutes a violation, hence the prayer is to have that contract declared null and void.

The government asserts that these two companies have been and are engaged in substantial competition with each other, and also that they are potentially competitive with each other in interstate commerce.

The petition asserts that, by the terms of the decree in the original case, the court adjudged that these defendants with others had been engaged in a conspiracy in restraint of trade. It quotes Section six of that decree which enjoined all of the defendants, including the Vacuum and the Standard Oil of New York, from entering into any similar combination in restraint of trade, and alleges that the proposed merger would constitute a violation of the express and literal terms of the decree.

The government asks that the contract for the proposed merger be declared by the court to be in violation of the decree, that it be declared void, and that the Vacuum and Standard companies involved, with all their employes, be enjoined from proceeding further with the merger.

It is the intention of the government to bring the case on for a speedy trial as soon as the defendants have filed their answers. All the legal proceedings will be conducted in the district court for the eastern district of Missouri for the reason that the original suit was tried and the original decree entered in that court.

James M. Guffey, Oil Pioneer, Dies at 91

CLEVELAND, March 24.—James McClung Guffey, 91 years old, died March 20 at his Pittsburgh home. He was a pioneer in both the Pennsylvania and Texas oil fields and at one time was considered the largest individual oil producer in the country.

Mr. Guffey entered the oil business in 1865 at Pithole, Pa., as a driller but soon began drilling for himself. His first wells made money but, like many producers, he lost it on other wells. He went to Texas where success built his fortune into millions.

He was a leader in the Democratic party in Pennsylvania and at one time ran for Congress but was defeated in that overwhelming Republican state.

Yates Field Production Cut

By Telegraph

HOUSTON, March 23.—Allowable production in the prorated Yates field of Pecos county in West Texas was cut from 130,000 barrels daily to 110,000 barrels effective March 20, by order of the railroad commission. Action which was taken at the request of all Yates operators is for a period of 60 days unless further extended.

Inauguration of the equivalent six day operating week by some of the larger companies and the consequent running of crude to storage altered the situation which had defeated a similar reduction program a month ago. The present order is of emergency character and may be rescinded by the railroad commission at any time should industrial conditions change.

Cities Service Earnings Rise

CLEVELAND, March 24.—Cities Service Co. reports for the 12 months ended Feb. 28 earnings of $40,109,641, subject to reserves, as compared with $30,022,615 in preceding 12 months. Arkansas Natural Gas Corp., Cities Service controlled, and its subsidiaries earned $3,652.121 in 1929 before reserves, as compared with $3,045,386 in 1928.

Doheny Is Acquitted Of Bribe Charge

WASHINGTON, March 14.—Edward L. Doheny was acquitted by a jury in the supreme court of the District of Columbia March 22 of a charge of giving $100,000 as a bribe to Albert B. Fall in connection with the leasing of the Elk Hills Cal., naval petroleum reserves to Mr. Doheny's Pan American Petroleum & Transport Co. when Fall was secretary of the interior.

Fall, who was indicted jointly with Mr. Doheny was convicted of accepting a bribe in the same court last fall but the Doheny jury was charged that though Fall was found guilty Doheny could be acquitted.

Mr. Doheny announced he intended to take a cruise to recuperate from the ordeal he has been in since the oil cases were brought to public notice almost eight years ago.

The Editors' Viewpoint

National Petroleum News

Blaine Brought to Task

THE two senators from Oklahoma, Messrs. Thomas and Pine, did a right good job in the senate the other day in replying to and roundly condemning the tactics of Senator Blaine, of Wisconsin, who had uttered many falsehoods about the effort of oil men to get a tariff on oil.

Other senators joined in the excoriation of Blaine so that all told the incident will probably prove quite beneficial in causing some of the loose-talking senators to stay nearer the truth in the future.

We were in hopes that Senator Thomas had in mind having Blaine called before the bar of the senate for punishment for his lying. There is no reason why this should not be done. Bad senators should be punished for their sins just as much as bad boys. If the senators want the public to respect them, they must force their erring associates to behave themselves.

The oil industry has suffered much from lying senators. Some years ago the senate committee on commerce, headed by the then living LaFollette, senior, and associated with the senator from Iowa, Brookhart, conducted a costly investigation of the oil industry. Then, because they could not find anything in the evidence on which to condemn the industry, they took some stray and unsupported testimony, some false figures and drew up a report which was false. When the industry pointed out one grievous error in their figures, neither LaFollette nor Brookhart, nor any other member of the committee, had the honor or decency to admit the error. They just let their falsehoods stand.

Industry generally has suffered much from this same type of senatorial lying. Let us hope that the vigorous condemnation of the falsifying senator from Wisconsin will change the senatorial conduct.

In the meantime the oil industry owes a vote of thanks to Wirt Franklin for the high character of his fight for a tariff. Regardless of how one may think on the oil tariff proposal, we all can admire the man who made such a clean, able and almost successful fight.—W. C. P.

The Governor Shys at Shadows

THE governor of Texas has hindered the progress of cooperative development in that state by refusing to submit to the legislature the "permissive agreement" idea sought by many of the oil operators. He fears the suggestion comes from the Standard interests and once more takes occasion to point to the splendid aloofness of Texas in matters of federal control.

The governor has confused the business of state's rights. What the oil producers desired was freedom to unite in the orderly development of an oil pool. There was nothing of compulsion in their plan and the federal government had nothing to do with it. There are, it is true, some operators who are opposed to unit development. The type of legislation proposed by others would have no bearing upon the opponents. It merely would give to those who desired to cooperate in developing a pool the right to do so.

Industry is today so constituted that coordination of effort between distinct units in the same business is vital. Nobody is proposing that such coordination be forced upon the units, but, within limits of reason, they should enjoy the right to improve their efficiency.

The governor's insistence on state's rights, etc., misses the point. The remark of Dr. George Otis Smith, director of the U. S. Geological Survey, made recently in another connection, applies to this. He said: "Insolvency is a high price to pay for perfect freedom of action."—L. E. S.

A Sizeable Customer

A REGULAR motorist patron of a complete service station is worth $67.10 in gross profit to that station, says the Standard Oil Co. of California in its publication for its dealers. It arrives at this figure from the following estimates:

The average purchase of gasoline is 480 gallons, at a gross profit to the station of 4 cents a gallon, a total gross of $19.20.

Twelve oil changes a year should give the dealer a gross profit of $8.40, or 70 cents on each oil change.

Twelve grease jobs a year would give a profit of $9, at the rate of 75 cents on each greasing job.

Tire repairs and replacements, at an average mileage of 6000 miles a year, would give a gross of $12.50. Sale of the company's line of oil specialties, cleaning fluid, household oils and so on, accessories and miscellaneous tools could bring to the station owner a gross of $18.

On the basis of this company's estimates—and, it must be borne in mind, in a territory where there are probably relatively more stations giving complete service than in any other part of the country—tire repairs and sales are estimated as bringing in a fifth of the station's gross profit.

The sale of gasoline and motor oil and the lubrication service brings in over half the average dealer's profit.

Perhaps the surprising feature of the estimate is the $18 item of profit in the sale of specialty products, automobile accessories and tools. For the average station in this part of the country the profit to the dealer would be less on this item. It would amount to something, however, as the majority of stations have for sale at least a few oil products outside the needs of the motorist, such as cleaning naphtha, or some kinds of household oil or grease.

The average automobile owner in California spends from $240 to $300 per year for products or services the complete station offers, according to this company's estimate, most of it in cash sales. A man who spends anywhere near that much money a year is a good customer of any business firm, and considerable sales and advertising effort is spent to hold his business with that particular firm. The chances are we have been too prone to look at the station customer in the light of his individual purchases of a few gallons of gasoline and not in the light of the total business all his patronage could bring to the station.—V. B. G.

Credits and Code in Spotlight Before Tennessee Jobbers

NASHVILLE, March 22

THE establishment of a definite credit policy which would regard as unsound and unwholesome any extension of credit as an inducement to buy, was the measure urged by W. Z. Brown, credit manager, Producers & Refiners Corp., Independence, Kan., to jobbers attending the tri-annual meeting of the Tennessee Oil Men's Association at Chattanooga on March 14 and 15.

"Credit terms in the operation of a business," Mr. Brown said, "should be based on the length of time required to use the article sold, and to make the matter of payment just as attractive as the merchandise."

In explanation of what constitutes a good credit policy, he named character, capacity and capital of the credit seeker as the three things to be considered.

"Good policy commands respect of the trade. Bad relations in business usually result when credit is abused," Mr. Brown said. He prescribed ways of preventing abuse of credit and preferred a liquidating plan as a remedy for those accounts in bad condition.

Another point stressed in Mr. Brown's address was that the farmer should be made to adhere to regular terms, the same as the reseller, pointing out that it is unsound for a supplier to furnish funds with which to operate his business by granting unwarranted, lengthy terms for payment.

Another important speaker at the meeting was Paul E. Hadlick, recently appointed secretary of the marketing division of the American Petroleum Institute. His address was an interpretation of the code of marketing ethics sponsored by the Institute, in which he explained new rulings of the code. His talk indicated that the code would bring about a gradual cleaning up of marketing policies rather than a revolutionary change overnight, saying that if such a change were attempted in too short a time, only failure would result.

Mr. Hadlick's address was followed by an informal discussion of the code by various members of the association.

The Tennessee code committee met during this time, presided over by Mark H. Senter, Southeastern Oil Co., Chattanooga, and vice president of the eastern division of the association. H. G. Guzzo, Gulf Refining Co., Knoxville, was appointed vice chairman of the committee and Lew W. Collins, executive secretary of the association, was appointed executive secretary of the committee.

Permanent offices of the code committee will be at 420 Nashville Trust Bldg., Nashville. Group meetings will be held in various parts of the state, according to Mr. Collins.

The new inspection regulation whereby petroleum products entering the state will be inspected, was discussed during the meeting.

A series of radio programs to induce motorists to travel in the south was discussed by Lawrence Hirsig, of the Automotive South Publishing Co., sponsor of the program. Mr. Hirsig urged oil jobbers to assist in this program by subscribing to "Hi-way Harbors," a name identifying service stations which support such radio programs.

Royal Dutch Shell Orders Ships

NEW YORK, March 22.—A dispatch from London reports the ordering of 20 motor propelled tankers by the Royal Dutch-Shell group. Tonnage is to be 11,500 each and the vessels will have a speed of 12½ knots. Cost will approximate $18,000,000.

Standard of Maine Enjoined

PORTLAND, Me., March 20.—The United States district court here has enjoined the Standard Oil Co. of Maine, Inc., from using the name Standard Oil Co. Suit against the Maine corporation was instituted by the Standard Oil Co. of New York which markets in this state.

Col. Hilpp Re-Elected President At I.O.M.A. Meeting

CHICAGO, March 19

COL. E. H. HILPP, Kentucky Consumers Oil Co., Louisville, was re-elected president of the Independent Oil Men of America at the annual business meeting in Chicago March 17 and 18. A. L. Lommel, Bartles-Shepard Oil Co., Waterloo, Iowa, was elected vice-president; and Paul Deer, G. W. Deer & Son Corp., Crawfordsville, Ind., was re-elected secretary-treasurer.

W. R. McCain, Purity Oil Co., Springfield, Mo., was elected chairman of the board of directors. Trustees are S. W. Rusk, Rusk Oil Co., Philadelphia; and J. O. Abshire, Abshire Oil Co., Goshen, Ind., for two year terms; L. D. Pierce, Pennsylvania Petroleum Products Co., Providence, R. I., and Mr. Lommel for one-year terms.

The board of directors elected the following members directors to fill vacancies: T. A. Telfer, Calumet Refining Co., Chicago; A. E. Blohm, Blohm Oil Co., Temple, Texas; and R. M. Prichard, Home Oil Co., Ripley, Tenn.

The 10 directors, elected by mail ballot, for three year terms are I. A. Archambault, Pennsylvania Oil Co., Evanston, Ill.; S. H. Arnold, Alabama Oil Co., Huntsville, Ala.; J. R. Battenfeld, Battenfeld Grease & Oil Co., Kansas City; F. E. Bergfors, Quincy Oil Co., Quincy, Mass.; R. G. Cunningham, R. G. Cunningham Oil Co., Miami, Okla.; E. E. Johnson, Columbia Oil Co., Columbia, Tenn.; A. L. Lommel, Bartles-Shepard Oil Co., Waterloo, Iowa; L. F. Mihlheim, California Northern Corp., Oakland, Calif.; S. W. Rusk, Rusk Oil Co., Philadelphia; and W. G. White, the Goyer Co., Greenville, Miss.

A campaign for highway signs near cities having I.O.M.A. representation was endorsed by the directors, and steps were taken to raise an appropriation for the campaign.

S.O. Indiana Takes Over Midwest Stations

CHICAGO, March 24.—The Standard Oil Co. of Indiana announces that, effective April 1, it will take over and operate the marketing facilities of the Midwest Refining Co. The Midwest Co., a Standard subsidiary, operates approximately 300 bulk and service stations in Colorado, Wyoming and Montana.

The Midwest name will be removed from all stations and that of the Standard of Indiana substituted and a full line of Standard oil products will be handled. In the future the Midwest company will confine itself to refining. The company has a large refinery at Casper, Wyo., and smaller plants also in Rocky Mountain territory.

A desire for simplification of administration, together with the belief that the use of the Standard's name in the Rocky Mountain territory would bring added business from middle western tourists, were reasons given by Standard officials for the change. No changes are expected to be made in the sales organization.

Sportsmanship in Code Observance Urged at Michigan Meeting

By E. L. Barringer
N. P. N. STAFF WRITER

DETROIT, March 21

SPORTSMANSHIP in observance of the code of ethics was urged by P. H. Harrison, regional manager of the Sun Oil Co. at Detroit, at the ninth annual convention of the Michigan Oil Men's Association here March 19, 20, and 21.

"Let us have the courage to play the game according to the rules," he said. "In the sport world the player does not ask for his own special interpretation of rules, and in the business game let's not ask for any either."

Spreading of knowledge about the code to all employees was urged by Paul E. Hadlick, secretary of the marketing division of the American Petroleum Institute. A copy of the code should be given to all employees and station attendants he said.

The greatest demoralization in the industry exists at the pump, where the public is met, and this is the point to build up confidence, Mr. Hadlick said. To argue that over-production was the source of trouble, and hence a stabilized marketing condition could not be built was illogical he said.

The public has been critical of the oil industry because of a demoralized price structure in giving away premiums, in coupon book discounts, in free gifts on opening days, through indiscriminate discounts, through uneconomical outlets and in bootlegging through a competitor's pumps, he said. These points, which brought lack of profits and of respect from the public, are prohibited by the code of ethics.

N. R. Grimshaw, assistant general manager of the Standard Oil Co. of Indiana, gave his address on the code. "Our sales department has no opinion on the code," he said. "President Seubert signed the code, and said here it is. We conducted schools throughout our territory to acquaint the employees with the code.

"It has made me sick to sign some of the orders that came to my desk for equipment But as long as our competitors are going to give away equipment we will do it too."

H. A. Coffin, vice-president of the White Star Refining Co., Detroit, and chairman of the state code committee, was in charge of the code program.

In the question and answer discussion on the code Mr. Hadlick reported that biggest difficulty in the East was the commercial discount. The only solution, he said, was to abolish it.

Many Michigan jobbers asked questions concerning the lease and license agreements. Mr. Hadlick explained the recent rulings about leases, the form, and the filing in a place of record.

There was a liberal showing of hands when jobbers who signed the code were asked if they were posting their prices at the bulk plants. Mr. Coffin said the White Star Refining Co. had issued orders to post prices.

Taxation was the other important subject on the program. John J. Cox, Michigamme Oil Co., Ann Arbor, as chairman of the association's tax committee outlined the tentative program for 1930 as follows:

Close contact with members of the legislature so the problems of the industry will be well understood before the members convene at the state capitol.

An anti-substitution bill for rigid protection of trade-mark and brand names, with a penalty for the wholesaler and retailer and his employees for substituting.

Strong opposition to an increase in the state gasoline tax.

Refunds on gasoline tax only on receipted bill from an oil company.

Provisions in the gasoline tax law to relieve a company from paying taxes on gasoline inventory, and that the gasoline tax should be in lieu of other taxes on the goods.

Shrinkage allowance of more than 3 per cent on gasoline.

Attempts to remove kerosene inspection law should be considered in the light of possible inspection laws on domestic burner oils, and on lubricating oils.

Chain store tax bills have been declared unconstitutional, said Frank E. Packard, tax attorney for the Standard Oil Co. of Indiana, on a levy per store unit. North Carolina has discovered a loop hole, he said, to tax chain stores by placing a tax on sales beginning with $200,000 annually and amounting to 1 per cent on sales of more than a million dollars.

Peter Jensen, President of Hansen & Jensen Oil Co., Escanaba, Mich., urged jobbers to have the young oil men run for legislative offices in order to have men on the inside of politics who would appreciate the oil man's view.

The third afternoon session was given to inspirational speeches by A. P. Haake, managing director of the National Association of Furniture Dealers, and by R. E. Chamberlain, general sales manager of the Packard Motor Car Co. Tax consultation service was held for jobbers in the mornings.

Officers whose terms expired were re-elected for the coming year. H. H. Ragle was named president; Vice-presidents are A. J. Boergert, Central Oil & Gas Co., Saginaw; A. D. Dubuisson, Wolverine Service Stations, South Haven; Peter Jensen, Hansen & Jensen Oil Co., Escanaba; C. F. Rennie, Rennie Oil Co., Traverse City; and J. F. Wilson, Star Oil Co., Port Huron.

Directors elected are J. J. Cox, Michigamme Oil Co., Ann Arbor; R. T. Moreland, Moreland Oil Corp., Adrian; D. E. Lavin, Shell Petroleum Corp., Detroit; and Mr. Ragle. S. B. Spalding, Arrow Oil Co., Lansing. was re-elected treasurer.

Luncheons were held each day, and the annual banquet was March 20. W. B. Stout, head of the Stout Air Lines, was the banquet speaker. About 500 persons were registered.

NEW YORK—A new member on the national committee on interpretation of the code of marketing ethics of the American Petroleum Institute is H. D. Collier, Standard Oil Co. of California, San Francisco. Mr. Collier succeeds E. L. Shea, Tide Water-Associated Oil Co., New York, who resigned.

Gilmore With Sporting Goods Men

CHICAGO, March 20.—James A. Gilmore, who until a few months ago was secretary of the American Oil Men's Association, until it disbanded, is now secretary of the National Sporting Goods Distributors Association. He took up his new duties March 15. For the first three months his time is to be spent in New York, Philadelphia, and New England. After that he is to establish a national headquarters in Chicago.

60-Mile Gasoline Line Planned

By Telegraph

HOUSTON, March 24.—Reports persist without confirmation that the Magnolia Petroleum Co., plans construction of a 60-mile 3-inch gasoline pipe line from its Luling refinery to San Antonio. Construction work is said to be contemplated immediately and the line is expected to be ready for operation in six weeks after the start.

Bar Association Committeemen Make Study of State Oil Laws

TULSA, March 15

SUB-COMMITTEES of the mineral section of the American Bar Association in seven states are now studying the laws on oil and gas conservation in those states with the view of making recommendations for strengthening the laws, where needed, in the interest of promoting conservation.

The bar association members who have participated in the mineral section's activities over the past three years, are following closely the work now under way. Before the committeemen is an extensive outline of the past activities, with suggestions as to attack on the problem at hand. This memorandum was prepared by attorneys who have been active in the mineral section's efforts. Previous studies were addressed to the long view of the oil industry, planning for permanent alleviation of the over-production evils and the attendant waste of gas energy, capital and oil left unrecovered in sands.

The present approach to the subject has the immediate situation rather than search for permanent remedy as its objective. Says the memorandum:

"While, therefore, the best thought of the American petroleum industry is bent upon finding and applying the permanent remedy for overproduction, an emergency of such seriousness now confronts the industry that immediate remedies to meet the emergency must be found and applied in the important oil producing states at least if disaster is to be averted. An acute and demoralizing condition of oversupply of crude petroleum exists in the United States, arising from two sources, domestic production and imports of crude.

"This condition of overproduction is particularly alarming in California, Texas and Oklahoma. Furthermore, this desperate state of affairs will continue indefinitely unless drastic corrective measures shall be devised and put into operation at once."

The memorandum was addressed particularly to the Oklahoma sub-committee. Among pertinent points raised is the question of whether the state anti-trust laws would be violated if a state-wide agreement among operators were set up to limit production to balance supply and demand. And, if the answer to that should be in the affirmative, would the fact that the operators are dealing with an irrenewable natural resource bring the agreement within the rule of reason?

If the committee should suggest that modification of the Oklahoma anti-trust laws is necessary to accomplish the result of validating agreements to limit production during periods of over-supply, it is suggested that the public interest will require that the state corporation commission be given the power to determine whether there is an over-supply, how much and the probable duration. Overproduction would have to be defined and demand likewise would require defining.

There is a trend of thought among oil lawyers favoring the vesting of power in the state commission to compel strict observance of its findings on overproduction in one or more pools. One of the weaknesses of the present laws under which the state commission has been issuing curtailment and proration orders the past three years is the fact that enforcement is not summary. Further, the law is indefinite on the subject of waste and fails to take into account storage of oil in times of oversupply. Some lawyers believe modification of the statute, or amendment thereto, should define demand as the amount currently needed to supply the market.

The memorandum previously referred to says, with respect to enforcement of the commission's orders:

" . . . The bill should provide that when an order . . . is made by the corporation commission, and should it be disobeyed by any operator, the record should be certified to the attorney general with power in him to seek a mandatory injunction in the county where the oil pool is situate for the enforcement of the order, and neither an appeal from the order of the corporation commission nor an appeal from the temporary injunction should serve as a supersedeas.

"Much of our difficulty has come from the fact that one operator would continue to produce in violation of the order, which either prejudiced seriously the interest of all operators who were obeying the order or would result in a breakdown of the curtailment project in respect of the particular pool."

It is expected that the several state sub-committees will make their studies of the laws in the respective states at once, as their reports are to be placed in the hands of Prof. Walter E. Dodd, chairman of the mineral section central sub-committee by May 1 next. The reports will be examined as to constitutionality and reported to the full Committee of Nine, which will embody all the material in a report to be given to the mineral section proper at the summer meeting of the bar association in Chicago.

The mineral section has been studying the oil situation for several years and, from time to time, has made suggestions. In 1927 the Federal Oil Conservation Board asked the bar association to help in furthering the cause of conservation and the mineral section drew a bill to be submitted to Congress, granting operators immunity from federal anti-trust laws with regard to co-operative development of oil pools and agreements to limit production in times of oversupply. Nothing has come of this and there is a growing sentiment among attorneys that such action would be superfluous, as adequate state laws on conservation, curtailment of production and unit development would cover the case.

The second committee of the mineral section made a report and drew two model bills, one of the relief nature to take care of state anti-trust laws and the other providing for majority control by operators in a single pool to effect unit development. Opposition of an intense character developed to the latter and it was not urged upon the legislatures.

None of these suggested laws has been passed upon by the bar association as a whole. It is probable that some consideration will be given this summer in Chicago.

The state sub-committees now at work on the study of present state laws are as follows, the chairman in each case being the first named:

California

George W. Nillson, Los Angeles; P. C. Black, Los Angeles, and Daniel W. Home, San Francisco.

New Mexico

James M. Hervey, Roswell; Carl H. Gilbert, Santa Fe; J. O. Seth, Santa Fe.

Texas

T. J. Lawhon, The Texas Co., Houston; A. S. Hardwicke, Magnolia Petroleum Co., Dallas; E. H. Eddleman, Wichita Falls; Judge B. H. Powell, Austin, and R. E. Hardwicke, Fort Worth.

Louisiana

T. M. Milling, Standard Oil Co. of Louisiana, Shreveport; H. C. Walker, Jr., Louisiana Oil Refining Co., Shreveport; H. B. Warren, Shreveport; C. B. Huson, Mansfield, and Cecil Morgan, Shreveport.

Arkansas

Judge T. J. Gaughan, Camden; Joe K. Mahoney, El Dorado; Charles T. Coleman, Little Rock, and Du Val L. Purkins, state senator, Warren.

Oklahoma

Alvin Richards, Pure Oil Co., Tulsa; D. A. Richardson, Oklahoma City; W. T. Anglin, Holdenville; Villard Martin, Tulsa, and L. A. Rowland, Bartlesville.

Kansas

James W. Finley, Empire Companies, Bartlesville, Okla.; T. J. Flannelly, Prairie Oil & Gas Co., Independence, and Karl Geddes, Eldorado.

East Coast Fuel Oils Move West By Great Lakes Water Route

By E. L. Barringer
N. P. N. STAFF WRITER

DETROIT, March 24

TRANSPORTATION of fuel oils from the Atlantic seaboard through the Great Lakes waterway system this summer to cities along the United States side will write another chapter in the swift moving history of inland water movement of petroleum products. The rich industrial centers along the southern shores of the lakes will be tapped by the eastern seacoast fuel oil markets in competition with markets of inland refineries.

A cargo of fuel oil from the Gulf of Mexico to Buffalo last October marked the beginning of the Great Lakes fuel oil movement. It is to be resumed this spring, with three boats in service for two oil companies.

The fuel Oil Corp., Detroit, will complete this year a fuel oil marine terminal at Detroit with storage capacity of about 500,000 barrels, and will operate about 100 tank cars from the plant. The company's 17,000-barrel tanker will ply the Lakes this summer, and a sister ship will be purchased this spring.

The Allied Oil Co., Inc., Cleveland, which brought the first cargo of fuel oil to the lakes, will erect a marine fuel oil terminal, with tank car loading racks, at Cleveland.

These projects will bring the Great Lakes into greater prominence for the oil industry. Gasoline has been moved on the lakes from the Chicago refinery district by the Standard Oil Co. of Indiana and the Shell Petroleum Corp. for several years. The McColl-Frontenac Oil Co. and Imperial Oil, Ltd., Canadian companies, have fleets of tankers plying the lakes. The Great Lakes also came into prominence earlier in 1930 with proposed gasoline pipe lines from seacoast and inland refineries to terminate on the lakes.

With the completion of present projects there will be three marine fuel oil terminals along the Lakes, and three tankers transporting fuel oils.

The terminals are those of the Frontier Fuel Oil Corp., Buffalo, along the Niagara river completed last October; the Fuel Oil Corp.'s plant at Detroit; and the Allied Oil Co. at Cleveland. The Allied company will be operating a tanker, and the Fuel Oil Corp. will have two.

The Fuel Oil Corp.'s terminal was started last fall with the erection of two 25,000-barrel storage tanks, a wharf at the slip, and a dock house. This year six 80,000-barrel tanks, a pump house and a laboratory on the wharf will be erected. All storage tanks will be fitted with steam coils. A tank car loading rack will be built and the company contemplates using about 100 cars in its service.

In constructing the plant foundations had to be sunk in the muck along the Detroit river. For the 25,000-barrel tanks piles were sunk, with 15-inch centers, from 65 to 75 feet in the marsh. On top of the piles a concrete mat, 18 inches thick, was laid for a foundation of the tank bottoms. Sand may be used for foundations of the 80,000-barrel tanks. The sand would be taken from nearby waters. As the sand would drop into the muck, water would be driven out, forming a hard base for the tanks.

The Allied Oil Co. has not disclosed the size of its storage terminal. The announcement was confined to the fact that a plant will be built in Cleveland.

The Fuel Oil Corp.'s tanker was purchased last fall. It is the "Mex-oil." During the winter it was leased for transporting oil on the East coast. The tanker has a capacity of 17,000 barrels. A sister ship will be purchased this year.

The Allied Oil Co.'s tanker, the "Crudoil," made its first trip to the Lakes last fall. On Oct. 11, 1929, it cleared from the refinery of the Standard Oil Co. of Louisiana at Baton Rouge, La., and unloaded at Montreal and at Buffalo. The tanker was bunkered at Miami, Fla.; Bayonne, N. J.; Halifax; and at Montreal. To get through the Lachine canal on the St. Lawrence river, which has a draft of 14 feet, part of the cargo was left at Montreal.

Following the initial voyage the tanker was chartered for moving gas oil and crude oil on the eastern end of the Lakes. Three trips were made from the Toledo to the Cleveland refineries of the Standard Oil Co. of Ohio with gas oil for cracking. Three trips were made from Buffalo to Toronto with crude oil for the McColl-Frontenac Oil Co. The tanker is in winter quarters at Cleveland, and will begin navigation about April 1.

The "Crudoil" has a capacity of 17,000 barrels. It is steam driven, with oil burning boilers. It has twin-screw propellers.

The Allied Oil Co. deals in fuel oils, with headquarters in Cleveland. W. W. Vandeveer is vice-president and F. R. Newman, secretary and treasurer.

The Fuel Oil Corp. was organized in 1923. It handles industrial and domestic fuel oils from its bulk storage plant in Hamtramack, a suburb in Detroit. A description of the plant and the company's operating policies in selling domestic oils was given in NATIONAL PETROLEUM NEWS, issue of March 14, 1928, page 70.

The Hamtramack plant will continue in operation. Tank cars will be used if oil is to be transferred from the marine storage to the Hamtramack plant.

Officials of the Fuel Oil Corp. are D. R. Mitchell, president; George E. Baldwin, and L. F. Ruwe, vice-presidents; H. E. Heren, secretary; and W. E. Remter, treasurer. Mr. Ruwe has charge of building the marine terminal.

The beginnings of the fuel oil marine terminal at Detroit of the Fuel Oil Corp. The two 25,000-barrel tanks were erected last fall; six 80,000-barrel tanks will be built this year

Review of Late Production News

CRUDE production, which has been teetering back and forth the past several weeks, fell off again during the past week in the amount of 47,300 barrels, compared with a gain of 47,850 barrels the previous week. Daily average output for the country was 2,535,900 barrels the week ended March 22, compared with 2,583,200 barrels the previous week, according to the American Petroleum Institute.

The big change during the week was again in the Oklahoma City field, which decreased 21,050 barrels on daily average production. Bowlegs decreased 6550 barrels; Earlsboro 2950; Seminole 5150; St. Louis 3250; and Little River 2500 barrels. Production of Oklahoma fields was up the previous week as wells were being tested.

Yates pool declined 9950 barrels. Barber's Hill was up 4800 barrels. Zwolle, in N. Louisiana, fell off 2300 barrels.

California production was fairly steady. The only change of consequence there was in Santa Fe Springs which fell off 5300 barrels.

California

GRANTING of an injunction to restrain operators at Santa Fe Springs from wasting natural gas in an unreasonable manner, marked an important development during the past week in the effort of conservation leaders on the Pacific Coast to substantially reduce crude oil production.

As a result of the enforcement of the gas law to become effective March 2, it is expected daily average production in the Santa Fe Springs field will be reduced to nearly 110,000 barrels with consequent injurious effect on daily crude yield of small independent producers with high gas-to-oil ratio wells.

Continuance of the hearing for Long Beach to prevent waste of gas in that field is scheduled to be held April 7 and first steps in the state's efforts in the Kettleman Hills field will take place at Hanford, April 1.

Leasing activity continues on the increase in the San Joaquin Valley and in the Coastal area north and west of Ventura Avenue. Standard Oil Co., General Petroleum Corp. and Shell Oil Co., and Continental Oil Co. are all drilling important test wells in the Coastal region.

A new oil field may be in the offing if reports claiming penetration of oil sand in Cal.-Ventura Oil Co.'s Carlin Smith No. 1 in the Redondo District, are found to have any verification.

Current production in this country by pools is found on page 97.

Oklahoma-Kansas

COMPLETIONS at Oklahoma City continue to pile up the daily potential for that pool, though people who know something about how lime wells act when they are left open, do not worry much about potentials in such a territory. The Konawa pool of Seminole county Okla., is the most active spot in the state as far as news is concerned. But even there, dry holes were the most interesting developments.

In the Texas Panhandle, operators seem much more interested in proration schedules than in anything else, though the production of the area is growing and the number of drilling wells increasing as they battle. Kansas had a set back in the wildcat territory of Ellsworth county when the hoped for Siliceous lime production failed to materialize between the Schurr pool of Rice county and the Sellens area of Russell county.

Texas, New Mexico, Louisiana

THE eleven producing wells in the cooperatively developed Van field of Van Zandt county, East Texas, are now being exploited at approximately the 10,000 barrels daily level as compared with a potential four or five times greater. All are under choked production.

The week's operations in the Permian salt basin region of West Texas and southeastern New Mexico were without significance. Shreveport district operators turned attention from North Louisiana to the Jackson, Miss., area, where the Gulf Refining Co. had a show of oil in its A-1 Rainey test, 13-5N-1E, across Pearl River from the town of Jackson. The test will be deepened in the hope of getting commercial production below the chalk formation, from which a flow was made at 2520 feet. After the first "head" the well began making salt water.

Wyoming, Montana

OPERATIONS in western South Dakota are receiving considerable impetus by the continued good weather. Cosden & Co. have resumed in Ziebach county, the Pacific-American is starting up on Country Club structure 2½ miles west of Hot Springs, the Black Hills Petroleum Co. has started up on the first of a series of 3 wells it will drill on Barker structure, and the Rapid City Drilling Syndicate is starting a test on the Robinson ranch which adjoins Barker.

Several new tests in the recently discovered extension in the Osage, Wyoming, field are located and material is moving in. Midwest Refining Co. will drill Midway dome for the account of the new Saltmount Oil Co., the test to be started in the early future. The Midwest deep test in the Salt Creek field has developed 1800 barrels production in the Tensleep sand into which it has drilled 200 feet in the 400-foot thick horizon.

In the Little Lost Soldier field the Prairie Oil & Gas Co. is changing from rotary to cable tools test of the well which had 1300 feet of oil standing in the hole from the Tensleep formation.

Wildcat well being drilled by White Eagle Oil & Refining company (Standard of New York) in Rio Blanco county, Colorado, reports more gas at 3028 feet, and that it is much wetter than previously. Deep tests in the old Florence field and the extensions are important this spring; the field has hitherto produced from the shale, but the new tests are to the deeper sands—the Morrison, Sundance, and Pennsylvanian, all within 2000 feet of the surface.

Injunction Under Gas Law Effective In Santa Fe Springs March 21

By Jack Westsmith
N. P. N. STAFF WRITER

By Telegraph

LOS ANGELES, March 25.—Santa Fe Springs operators report numerous inequities following the first day of the gas law enforcement March 23. Production was estimated at 135,042 barrels daily, a decrease of approximately 18,000 barrels from the previous week. Some operators were unable to produce oil under the allowed gas production and expect modification of existing injunction to be made.

LOS ANGELES, March 20

FORMATION gas production of the Santa Fe Springs field was limited to 295,000,000 cubic feet per day in a temporary restraining order signed March 19 by Superior Judge Hazlett. The order was to be effective at noon March 21. Hearing on the question of making the injunction permanent will be held June 16.

Production of oil from the field is expected to be cut to nearly 100,000 barrels per day as a result of the order. Potential production of the field now is 237,576 barrels per day according to an estimate by H. P. Grimm, Santa Fe Springs umpire. Recent production of the field has been about 158,000 barrels per day.

In prorating gas production among the leases 1200 cubic feet per barrel of oil potential was obtained by dividing the allowable gas production by the potential oil production. This gave an allowable production of 285,000,000 cubic feet of gas per day. There will be a market for about 200,000,000 cubic feet per day of this.

Counsel for four of the independent producers were successful in obtaining an increase of 10,000,000 cubic feet of gas per day. The gas is to be divided among the four by R. E. Allen assistant umpire.

The order of the court sets a gas allowance for each lease in the field based on the potential for that lease. It requires that operators submit a daily report and a weekly report of gas and oil production and permit the state oil and gas supervisor to check their accuracy. New wells may be kept open during completion and for five days afterwards.

More teeth are in the order than was expected generally by the industry and considerable dissatisfaction has been expressed by some of the large operators as well as small ones. Attorneys for some operators presented figures to the court indicating that the order would practically put them out of business.

During the testimony marking the close of the hearing, legal counsel for George F. Getty Inc., one of the large independent operators in the field, stated that 13 out of the Company's 21 wells now on production would have to be shut down if the injunction was granted. Under the provisions of the order Getty will be allowed to produce 22,681,000 cubic feet per day and the company has one well alone that is making in excess of this amount.

Getty's counsel made every effort to have gas production over the field limited to about 300 million cubic feet per day, the operators to apportionate it among their producing wells. This would allow this company and others with high gas content wells to open up wells low in gas and adjust their allowable gas production accordingly.

Attorney for The Texas Co. indicated that he preferred this plan to the one eventually granted by the court. He stated that if the company has to shut down its wells having high gas-to-oil ratio it will have to open up shallow producers in order to maintain sufficient crude production.

Expert witnesses called by the attorney for Getty testified that the company has some wells producing from the Clarke sand with gas-to-oil ratios of between 12,500 and 16,000 cubic feet per barrel of oil. One witness stated that if these wells, that are high on the structure, are beaned back to a figure of 8500 cubic feet per barrel of oil, as will be necessary under the order, such wells will be killed automatically.

This statement was answered by the attorney for General Petroleum Corp. who said that Getty had 13 wells on about an acre of ground and that even though the company did have to shut down some of its wells it would not have to worry about neighboring wells draining oil from under its lease.

Attorney for Star Petroleum Co. stated that his company had only one well producing from the Clarke sand and that as it had a gas-to-oil ratio of 12,500 cubic feet per barrel of oil it could not produce at all under the figure of 1,714,000 cubic feet allowed by the order for the particular lease. The court increased the company's quota to 3,000,000 cubic feet, an amount that was expected would permit the well to operate although the production would be cut from a potential of 1428 to an actual output about 300 barrels per day.

Hearing on the Kettleman Hills case is set to open April 1 and it is reported that considerable opposition will be encountered there by the state, especially if enforcement of the law during the coming week March 22, to April 1, at Santa Fe Springs proves injurious to oil operators. Hearing on the Long Beach case, which was scheduled for April 7, may be postponed until a future date if the Kettleman Hills trial proves to be complicated.

Board Appointed to Study Gas Law Operation

LOS ANGELES, March 22.—In accordance with his suggestion made during the close of the hearing on a temporary injunction at Santa Fe Springs asked by the state, Superior Judge Hazlett has appointed three petroleum engineers as a board of adjustment in determining equitable proration of gas production throughout the field.

Ralph Arnold, independent engineer and geologist credited with having geologized the Elwood structure, Joseph Jensen, chief petroleum engineer for Associated Oil Co., and Frank E. O'Neill, petroleum engineer for the Superior Oil Co., will assume the task of examining the general situation at Santa Fe Springs particularly with reference to conditions of individual wells with the objective of determining the least amount of gas that can be wasted with each barrel of oil.

This board of inquiry will report back to the Court at the end of 15 days on its findings and will act in the capacity of expert witness during any hearing before the Court in connection with requests for modifications of the existing temporary injunction now in force. These engineers will also be important witnesses at the hearing on the state's petition, June 16, to make the injunction permanent.

Crude Price Increase Is Again Talked; Independents Plan Convention

By Lawrence E. Smith
N. P. N. STAFF WRITER

WITH the return of fine weather many oil men of the Mid-Continent have sighted the first robin of Spring. In fact some of them are seeing the little bluebird that denotes a raise in the price of crude oil.

So strong has this sentiment become in Tulsa the past week that wagers are being freely made as to the date and the amount when somebody would post the increase.

The reasoning generally seems to be that crude oil price advances nowadays are headmarks, or rewards, for exemplary conduct. For example, the recent hike in California prices might be so interpreted. Oklahoma and Kansas producers, having restricted production in splendid fashion, are likewise about to be given a regimental citation in the form of a two-bit boost.

Since the meeting of oil producers held in Tulsa, March 18, the Standard Oil Co. of New Jersey, through the Humble Oil & Refining Co. in Texas and the Carter Oil Co. in Oklahoma and Kansas, is looked upon as the one that will pass out the bonuses.

There had been some talk that the Prairie Oil & Gas Co. would lead off, but that sentiment was killed by W. S. Fitzpatrick, chairman of the Prairie board. In a short talk at the meeting, Mr. Fitzpatrick asserted quite positively that his company was not going to be the one to increase the price. It has been demonstrated, he said, that the Prairie follows and does not lead in making the market now.

Reeser Is Optimistic Over California Restrictions

He spoke after E. B. Reeser, president of the Barnsdall Corp. and of the American Petroleum Institute, told of the restrictive work done in California, from where he had just returned. He asserted that everything was in fine shape out there and would continue so to be, as the gas conservation law had been upheld by the courts.

Mr. Reeser said he thought the Mid-Continent producers should find out from the companies that reduced the price in February just what should be done in order to get a fair price for crude oil. He asserted that the public does not care whether the price of gasoline is 19 cents (as in Tulsa) or 21 or 23 cents. The public would not object to the producer getting a fair price for the amount he brings to the surface. Oil is now selling at a loss, Mr. Reeser said.

"I have been told that practically every company is now drawing oil from storage," Mr. Reeser asserted. "How much longer must we draw on stocks before we get a better price? I have heard from 90 per cent of the refiners in the country that they are willing to comply with the suggestion of the Federal Oil Conservation Board and reduce gasoline manufacture. The situation is in fair way of being corrected in that phase and good results should follow these efforts."

Prairie Not Withdrawing Crude From Storage

Mr. Fitzpatrick asserted that the Prairie is not drawing crude from storage, and, he said, "it will not be true for some time. We now ask you to keep your crude in the ground. If the Prairie does draw oil from storage, your proration committee will be notified. We will not take oil out of our tanks for the purpose of reducing our immense stocks. We ask you instead to prorate.

"The Prairie has year after year helped the oil producer from whom it buys by taking his production in times of oversupply and storing it, figuring that it was fair to do so because we have asked the producer to sell us his oil in times of great demand. We have about reached the limit of that form of cooperation. We have not made money on the oil we stored—at least not on the last 25 or 30 million barrels we stored.

"We prefer to produce and sell less oil and make a profit than to see how much we can sell or keep the other fellow from selling. We are a western concern, devoted solely to the oil business, with no foreign outlets or side issues from which to make profits to plow back into the oil business.

"If you want to cut your production to the point where nobody can get oil who doesn't pay a fair price for it, we will go along with you all the way."

President R. M. Young, of the Carter Oil Co., was non-committal as to possibility of a price increase. He said that if the talked-of reduction in refinery runs materializes, it should go a long way toward correction of the situation. Texas, he said, was still in need of correction. C. C. Herndon, president of the Oklahoma-Kansas division of the Mid-Continent Oil & Gas Association, remarked that Mr. Reeser intends to give much of his time to the task of getting Texas' house in order.

Nothing is exciting more attention in the Mid-Continent now than the proposed convention of the Independent Petroleum Association of America. The date and place will be decided upon when Wirt Franklin, the president, returns from Washington, where he has conducted the campaign for an oil tariff. The place probably will be Kansas City, although St. Louis is also under consideration and the time is expected to be some time in April, probably before the 15th.

The chances are that a large crowd will attend. The Independent operator is restless and believes that he can gain something by moving in concert with others similarly situated. He has been encouraged by the vote on the tariff and is of a mind to keep up the work.

Independent Petroleum Association to Strengthen Itself

The I.P.A.A. is to be organized for future effort. As it stands now it is a rather loosely constituted body, having component parts in several states but with only the program that is supplied by its leaders. Its efforts have been centered on the tariff to the exclusion of all else. The coming meeting will see other issues brought into the open. It is proposed to invite to this convention Independent producers, refiners, marketers and royalty men. And, officers say, the Farmers' Union organizations probably will be asked to sit in at the sessions.

As for this price increase talk: The figures of the American Petroleum Institute bear out Mr. Reeser's contention that things are improved on the production end. For the week ended Jan. 18, during which week the Humble and Carter companies reduced the price, the daily average for the United States was 2,661,650 barrels and for the week ended March 15 the daily average production was 2,583,200 barrels, a drop of 78,450 barrels.

The refinery situation has gone the other way and it was on the basis of a bad refinery condition that the Hum-

ble said it reduced the price. Gasoline stocks held by the refiners who report to the A.P.I.—95.5 per cent of the total capacity of the United States—were 45,041,000 barrels as of Jan. 18 and 53,986,000 barrels as of March 15. Daily average runs to stills have remained about 2,500,000 barrels daily average. Does this look as though the price would be raised?

The report of the committee appointed by the Federal Oil Conservation Board to make a statistical study is expected to put its report on the oil situation into the hands of the Board soon. A meeting was held in New Orleans March 22. In the short time the committee is taking for the work, it is not expected to do much more than follow the general outline of the so-called Holmes committee report of a year ago, bringing it to date as to actual figures for 1929 and computing the estimates for 1930. It would not be surprising if it found that about 2,500,000 barrels of domestic crude daily would be the amount needed to supply the markets.

The petition to be presented to the Oklahoma Corporation Commission on March 27 has been drawn. It will be presented in the name of Wirt Franklin and will ask that production in the state be restricted to 600,000 barrels daily for April, May and June. It recites that the potential production of the state from wells already producing, or which could be producing but for present curtailment orders, is around 1,488,100 barrels daily, an excess of 888,100 barrels daily over the amount required by the market.

$75,000,000 Oil Notes Floated By Three Companies in Week

CLEVELAND, March 24

THREE oil companies did $75,000,000 of financing the last week, most of it in the United States.

The Royal Dutch Co. topped the list with an offering of $40,000,000 4 per cent debentures, bringing the financing of the Royal Dutch-Shell group to a total of $160,000,000 in a little more than a year. Part of this issue was sold in Europe.

Pure Oil Co. floated an issue of $20,000,000 5½ per cent gold notes, and Union Oil Co. of California completed the week's new financing with an issue of $15,000,000 5 per cent debentures.

In addition Standard Oil Export Corp. put on the market $14,000,000 of 5 per cent cumulative preferred stock, but this was part of an issue made when this Standard Oil Co. of New Jersey subsidiary acquired control of the Anglo-American Oil Co., Ltd., of Great Britain, and did not represent new financing.

The Royal Dutch debentures are to be dated April 1 and will mature in 15 years. The offered price was 89½ to yield 5 per cent. Final details of the offering were arranged March 20 between officers of Dillon, Read & Co., which headed the underwriting syndicate, and Sir Henri W. A. Deterding, general managing director of Royal Dutch, by transoceanic telephone. Sir Henri was in London and the Dillon, Read men in New York.

The Pure Oil issue was dated March 1 and matures in 10 years. The offered price was 97½ to yield 5.80 per cent. The underwriting syndicate was headed by the Guaranty Co. of New York and included Dillon, Read & Co., Chase Securities Corp., Halsey, Stuart & Co., Inc., Central-Illinois Co., Continental Illinois Co. and First Union Trust & Savings Bank.

The Union Cil debentures are to be dated April 1 and will mature in 15 years. The offered price was 99½ to yield 5.05 per cent. Dillon, Read & Co. headed the underwriting syndicate, which also included Bancamerica-Blair Corp., and Chase Securities Corp.

In the Royal Dutch syndicate were the following banking houses: Chase Securities Corp., Guaranty Co. of New York, Bancamerica-Blair Corp., Equitable Corp. of New York, Bankers Co. of New York, Harris, Forbes & Co. and First Union Trust & Savings Bank.

In a letter to bankers Sir Henri wrote the Royal Dutch Co. constituted the world's leading enterprise engaged in the production and distribution of petroleum and its products. The company owns 60 per cent of the outstanding common stock of the Batavia Petroleum Co., Anglo-Saxon Petroleum Co., and the Asiatic Petroleum Co. The other 40 per cent is owned by the Shell Transport & Trading Co. The Batavian owns 64 per cent of the outstanding common stock of the Shell-Union Oil Corp., which is the holding company for the major Royal Dutch-Shell operations in the United States.

In 1929 production of the Royal Dutch-Shell group amounted to 163,000,000 barrels or more than one tenth of the estimated world production of crude oil, said Sir Henri. Production was principally in the United States, Venezuela and the Dutch East Indies. The group has 30 refineries with a rated daily capacity of 635,000 barrels, with storage facilities for 70,000,000 barrels and a tanker fleet, with chartered vessels, of approximately 1,600,000 tons, he wrote. It has distribution in nearly every country in the world.

After giving effect to this issue and the exchange of 5 per cent guilder debentures for 4½ per cent priority stock, the capital of Royal Dutch is as follows: 4 per cent debentures (this new issue) $40,000,000; 5 per cent debentures $11,457,000, 4 per cent preference stock $603,000, and common stock $202,456,848; totaled $254,516,848. Conversion into United States currency is at par 40.2 cents per guilder.

Earnings statement of Royal Dutch for 1929 is not available but profits in the preceding five years were: 1928, $40,537,200; 1927, $39,995,518; 1926, $39,837,246; 1925, $37,066,359, and 1924, $34,531,296.

The new debentures carry warrants entitling the holders to purchase 15 New York shares of Royal Dutch for each $1000 debenture they hold at $66 2/3 per share on or before April 1, 1933, and at $70 a share thereafter, on or before April 1, 1936.

No public statement was issued by Sir Henri as to the purpose of the issue.

The Pure Oil issue is to finance a pipe line from the company's new production field in Van Zandt county, Texas, to Smiths Bluff, "to fund the company's debt incurred for the commencement of this operation and for other corporate purposes," Henry M. Dawes, president, wrote underwriters.

Mr. Dawes stated Pure Oil earnings in the nine months ended Dec. 31 amounted to $6,720,797 after all charges and reserves. This sum compares with $12,282,005 in the fiscal year ended March 31, 1929; $4,704,164 in the preceding year; and approximately $12,000,000 in each of the next preceding three fiscal years.

The notes are callable on 30 days' notice at 102½ until March 31, 1931, and at ¼ per cent less premium each succeeding year.

The Union Oil Co's debentures are to finance expansion, L. P. St. Clair, executive vice-president, notified bankers. The company's production from 615 wells in California in 1929 amounted to approximately 22.600,000 barrels of crude oil and natural gasoline. Receipts including crude oil and oil products purchased, totaled 50,700,000 barrels.

Present production of the company amounts to 55,000 barrels daily, Mr. St. Clair wrote, and the company is buying 53,000 barrels daily. Shut-in production of 273 wells is estimated at 55,000 barrels.

Net earnings of Union in 1929 amounted to $16,743,397 and in preceding years as follows: 1928, $12,724,918; 1927, $12,200,870; 1926, $14,856,576; 1925, $12,456,110, and 1924, $12,823,774.

Tariff on Oil Defeated in Three Votes, Franklin Will Carry On

By A. E. Heiss
N. P. N. STAFF WRITER

WASHINGTON, March 22

DEFEATED three times in the last week by votes in the senate against a tariff on crude and petroleum products, independent producers, members and supporters of the Independent Petroleum Association, have closed their headquarters in the Mayflower Hotel here, only to go home and build for a harder fight when the next opportunity comes.

"For the time being the Independent oil producers of the country are 'down' but not 'out,'" said Wirt Franklin, president of the association.

Had there actually been such a trade in behalf of sugar, oil and lumber as the opponents of the proposal declared was made, red fires of victory would now be burning in the oil producing country. No one denies the effort that was made to bring about a junction of forces in favor of more protective rates in the long pending tariff bill. But the effort was not as successful as it seemed at one time it might be.

Sugar and other commodities obtained the benefit of the revolt against the old coalition of irregular Republicans and Democrats in the senate, but reward was denied the men who came here as a result of crude cuts in January and made possible the defeat of the old coalition. A vote of 38 to 29 turned down the second amendment to the tariff bill introduced by Senator Thomas of Oklahoma, March 19.

A vote of 32 to 28 bowled over the amendment then introduced by Senator Pine, of Oklahoma. The latter was a concession by the advocates of a duty on petroleum to the opposition that was well understood to come from the administration on account of its conservation views, from the big importing refiners because they believed their interest to lie in free oil, and the opponents of protection as a matter of political principle.

A change of three more votes would have caused the adoption of the Pine amendment. That, however, would have been a loaf of only half the size the independents said they needed to keep their industry alive.

Senator Thomas' amendment proposed a rate of $1 per barrel on crude and 50 per cent ad valorem on products, which rates were the same as those in his amendment defeated on Feb. 28. But it was amended so that, if the duty had been voted, all the money taken in would have been devoted to the building of roads under the federal aid highway act under the supervision of the secretary of agriculture. The heavier of the adverse votes was cast against that provision.

After the Thomas amendment was voted down Senator Pine offered one proposing rates just half those carried in the Thomas amendment. It also provided for using the proceeds in the construction of roads. Both amendments provided for an investigation of oil prices and costs by the tariff commission to the end that rates might be increased or reduced as the facts warranted.

The Pine amendment, however, also provided for a lifting of the duty on crude in the event the average posted price in Texas and Oklahoma of 36 gravity crude should exceed $1.50 per barrel and the price of standard unmixed gasoline in New York City should exceed 20 cents a gallon.

The Pine amendment was offered in the hope of attracting enough votes to put over the main issue, that of getting oil on the dutiable list.

Senator Thomas, in support of his amendment, bitterly arraigned the lobby investigating committee of the senate which raided the producers' headquarters here just before the first vote on an oil tariff early in the month. He read the statement of Wirt Franklin, which the lobby committee refused to accept. Senator Thomas said that, under the practices of that committee, no citizen was safe to come to Washington to even suggest to members of congress what they should do for him except at the risk of being deprived of all the rights a citizen is supposed to have in his home.

"Mr. President," said Senator Thomas, "I suggest to some of those upon the floor of the senate that their company is quite as bad as that of some of us who have been accused of associating with citizens of this republic here petitioning the congress for a redress of wrongs and a redress of grievances."

That was said in connection with comments Senator Norris, of Nebraska, had made about "Col." John Carroll, known as the Nestor of professional representatives of big interests in Washington, including all the parts of the Royal Dutch-Shell interests. Carroll is the man who took Queen Marie of Roumania gallivanting around the country a few years ago and the employee of the Cuban government while the sugar fight was on earlier in the year.

When called before the senate lobby committee Carroll said that his income for his professional services was so great that he paid an income tax of $25,000 a year. He was not subjected to such a smearing as Wirt Franklin got from the committee. He was not asked one searching question as to what he had done for the huge sums he received. Nor were his papers brought before the lobby committee. Senator Pine also took part in the castigation of the lobby committee, three times telling Senator Blaine, of Wisconsin, he had not answered one of Pine's questions asking him what was the truth about the expenses of the delegation of the independents, which Blaine, in his speech had said was from $1,200 to $1.500 a day. Both Thomas and

Final Vote March 24

By Telegraph

WASHINGTON, March 24.—The last direct effort to get petroleum and its products off the free list was made March 22 in the senate and defeated by a vote of 45 to 33. Senator Thomas moved to strike petroleum and its products off the free list without saying what should be done in the way of a duty. He surmised that, if adopted, the motion would put petroleum in what is known as the basket clause carrying a duty of 10 per cent on the raw product and 20 per cent on the products.

"The reason I am making this motion," said Thomas, "is because yesterday the Senate sentenced the oil industry of America to death. Inferentially the vote yesterday commissioned a British company (Royal Dutch-Shell) to carry out the sentence."

The Senator then placed in the record the offer of the Royal-Dutch-Shell for subscriptions to an issue of $40,000,000 of stock for "The working of petroleum wells in the Netherlands Indies," its announcement said.

Pine called attention to the fact that the receipted bills taken among the papers that had been turned over to the committee, without waiting for a subpoena, showed that the expenses were a little more than $200 a day. Senator Thomas emphasized that the fight he was making was against domination of the oil industry by the importing refiners, including the Shell, Standard and Gulf. He said that, while the independents were making their fight openly as citizens having the right to petition Congress, the big interests were doing their fighting under cover; that, while they were not represented at the hearings and were not before the lobby committee except in the person of Colonel Carroll, they nevertheless "were here."

Senator Watson, of Indiana, was not satisfied with the statement that "they were here." So he asked questions, which enabled him to bring out the fact that Colonel Carroll, who was so tenderly treated by the lobby committee, as Senator Thomas thought, by reading some of the Carroll testimony, was the representative of the Shell in Washington.

Said Senator Watson: "The senator has said that the Standard Oil Co. was present, that the Royal Dutch Shell and the Gulf Oil were present. His expression was, 'They were here.' Does the senator mean to say that there were actually representatives of those oil companies here at the time working against the passage of his amendment for a tariff on oil?"

Replied Senator Thomas: "Mr. President, I think I made that clear. The Gulf Oil Co. is a Mellon-owned company. Mr. Mellon is the Secretary of the Treasury. I contend that he is here, very, very, very much here.

Col. Carroll Representative of Dutch Shell

"The Dutch Shell group is a foreign company, and I now shall proceed to show that the Dutch Shell group is here, very much here." which he did by reading a part of the questioning to which Colonel Carroll was subjected by the lobby committee.

Senator Thomas, before going to the questionable work done by the lobby committee in "raiding" the rooms of the independents, using the word that had been used in the newspapers to describe what the committee did, presented the issue, as he saw it before the Senate.

"The amendment just read embodies a request," said the Oklahoma senator "for a tariff on oil. More than that, it not only embodies a request for a tariff on oil but it involves a contest of oil against oil, a contest of domestic oil against foreign oil, a contest of independent oil against Standard oil, a contest of American oil against British oil. Every Senator upon this floor, when he comes to vote upon this question, must vote for oil; at that time he will have his chance of voting for American oil or for British oil, for independent oil or for Standard oil, for domestic oil or foreign oil.

"This amendment, Mr. President, suggests another question which is as vitally important, in my opinion, as is the amendment itself, as read from the desk. In this contest the independent oil producers today stand shoulder to shoulder with the corner grocery man, who sees a chain coming to ensnare his business and destroy it.

"The independent oil producers stand shoulder to shoulder with the many other independent businesses of America, which see themselves being crushed in the near future by the processes of the new industrial revolution. So, Mr. President, this amendment is more than a contest of American oil against British oil, and against other foreign oil; it is a contest between the oil men of this Republic and those who control the millions, and likewise those who control the billions."

Thomas Names the Opposition To The Oil Tariff

Senator Thomas answering his own question as to the opposition to the tariff said:

"The Standard Oil group opposes it. The Standard Oil group is known as the Rockefeller group. It is a $5,000,000,000 group.

"The Gulf Oil Co. opposes this proposal. The Gulf Oil Co. is reputed to be the personal property of the Mellon family, well represented here; and they oppose this proposal.

"The Dutch Shell group, a foreign corporation owned by the Government of Great Britain, is here opposing this proposal.

"Mr. President, the Standard Oil group, a $5,000,000,000 group; the Gulf Oil group, a billion-dollar group; the Dutch Shell group, another billion-dollar group! So in presenting this request for consideration we are opposed by concentrated wealth in the gigantic sum of at least $7,000,000,000.

"The main opponent here is the Dutch Shell group. The Dutch Shell group is the greatest producer of oil in the world."

Senator Walsh Defends Lobby Committee

Senator Walsh defended the lobby committee. Senator Pine tried to pin him down as to the accuracy of statements made by Senator Blaine about the independent delegation, but Walsh would not be pinned down to an answer as to whether Blaine was right in saying the committee was spending from $1,200 to $1,500 a day when its receipted bills showed about $200.

Senators Pine and Broussard heckled Senator Walsh at length as to why Carroll was not quizzed about the sugar lobby when the lobby committee found that he was employed by the Cuban Sugar Co. or why the committee had not obtained his records as it had those of the independent oil people, whose purpose and ways were obvious, according to a remark interjected by Senator Allen of Kansas.

Walsh finally got out of the thing by saying the committee could not see why anybody should pay Carroll for anything because he did not appear to be able to do anything for anybody.

In his defense of the lobby committee Senator Blaine declined to yield to Senator Thomas because, as he said, the Oklahoman had been very emphatic during the delivery of his remarks that he would not yield. Blaine, whose veracity was questioned, was sarcastic about Thomas' remarks saying that they were written out, petty, but well read.

His major premise was that it was disclosed, as soon as Franklin arrived in Washington, that the scheme was put afoot to trade votes for sugar and votes for oil.

Allen Calls Blaine's Speech "Pettifogging"

Senator Allen, of Kansas, called what Blaine did in making his speech on the night of Feb. 28 pettifogging. Allen said that his objection was to the methods of the committee and of the senator from Wisconsin.

"My objection," said Allen, "was to the fact that you subpoenaed this man (Franklin) in the hope of getting some half truths, or some suspicious circumstances and that, having gotten them, you hurried over here with pettifogging presentations of some material which was not convincing, but which you sought to make convincing by facts misleading and misrepresenting."

Debate Lasts Several Hours

The debate lasted for hours most of it turning on the lobby committee's misrepresentations—according to the senators supporting the duty—and patriotic services—according to senators opposing it.

Senator Pine late on the night of March 20, offered an amendment proposing a duty of 40 cents on crude and 20 per cent ad valorem on products. He made a short argument for it and then, on a viva voce vote, the Vice President of the senate declared the amendment lost. Senator Pine asked for the yeas and nays but the point of order was made and sustained that he did not make the demand until after the result was announced. However, it was agreed that a roll call vote should be taken on the next day and its result was 38 against and 37 for the duty.

Falseness of Charges Made in the Senate Is Set Forth by Franklin

THE falseness of the charges brought against Wirt Franklin, leader of the Mid-Continent independent producers in the oil tariff fight, on the floor of the senate, in connection with his activities in Washington on behalf of the tariff, is set forth in the following statement prepared by Mr. Franklin.

The charges were made by Senator Blaine, of Wisconsin, member of the senate lobby investigating committee, during the debate in the senate when the first vote was taken Feb. 28.

Mr. Franklin's statement was offered to the senate lobby investigating committee by himself March 4. The committee refused to agree to make it part of their records unless they were first given a chance to go through it. Mr. Franklin refused and Senator Thomas, of Oklahoma, who was at the hearing, told the committee he would present it on the floor of the Senate.

He presented the statement March 19 when the senate, for the second time, rejected the tariff bill amendment presented by the Senator from Oklahoma, removing oil from the free list.

Mr. Chairman and Gentlemen of the Committee:

Since I was summoned by your Committee to appear and did appear last Friday morning to be interrogated by you with reference to my activities in laying before Congress the condition of the oil industry in the United States developments with reference to this matter have been of such a nature and of so serious an import that I have decided to ask permission of your Investigating Committee to make a statement setting forth clearly the reasons which actuated us in presenting to Congress the request for relief from the intolerable conditions now prevailing in the domestic oil industry, and to refute the charges, insinuations and innuendo which have been hurled at me and my associates on the floor of the Senate by a Member of this Committee.

Gentlemen, may I have the privilege of making such a statement?

When on January 28, 1930, the Independent oil producers, refiners and marketers met in convention at Tulsa, for the purpose of seeking a remedy to the condition of ruin with which the immediate future confronted them, and there decided by unanimous action of some 1500 delegates, assembled from the various oil producing States, that our hope of redress lay in presenting the merits of our cause to the Congress of the United States, the only power on earth which could relieve our distressful conditions, we were of the opinion that the Bill of Rights and the Constitution of the United States were still effective and might be relied upon, at least to the extent of allowing us the right and privilege of petitioning Congress for a redress of our wrongs.

Being of this opinion and having thus decided to do, over 200 of the delegates there assembled from the various States volunteered to come to Washington to submit the merits of our cause to Congress and at the same time voluntary contributions were made by the men there assembled to be applied toward the actual and necessary expenses of such an undertaking. We had previously been advised by both Senators Pine and Thomas, of Oklahoma, that this was the proper method of procedure.

Accordingly, the delegates returned to their respective homes with the understanding that they should reach Washington by Feb. 3. Where a sufficient number came from any one locality or State, special cars were obtained, and these cars assembled at St. Louis into a special train, which arrived in Washington on the morning of Feb. 3, said train carrying 225 men engaged in the oil and allied industries.

Full Publicity Given the Trip To Washington

The newspapers having published the object of our trip, we were met in Washington by men from the Eastern oil producing States, and from time to time additional delegations of business men and men allied with the oil industry have come to Washington to present the problem to Congress as it affected the States and the localities from which they came.

Upon our arrival here most of our number established headquarters at the Mayflower Hotel and were met there by Senators and Representatives from a number of the oil producing states, who arranged for us a meeting in the Caucus Room of the House Office Building on the morning of Feb. 4, to which meeting Members of both the House and Senate generally were invited. Many of them attended.

As President of the Independent Petroleum Association of America, I made a full and complete exposition of the domestic oil industry of the United States and presented the reasons, facts and figures showing that a tariff on oil should be included in the pending Tariff Bill to protect the great domestic oil industry from utter demoralization and ruin and to prevent the gradual choking to the point of strangulation of the independent oil producers of the United States, which, if allowed to proceed, would result in the creation of a gigantic oil monopoly in the United States, similar to that existing in all other parts of the world. * * *

It was made plain at this first meeting and so stated in unequivocable terms that the men engaged in this great industry had come in person to lay their cause before Congress; that they had employed no lobbyists; that they had hired no attorneys and that they would not do so; that we were submitting our cause to Congress upon its merits and its merits alone; that the facts and conditions of the industry were sufficient in themselves to warrant relief from the intolerable conditions which exist; and on that basis, and that basis alone, have we presented our cause to Congress and the Members thereof, resting secure in the belief that our rights as American citizens under the Constitution guaranteed to us the privilege of so doing.

Regardless of the serious charges, insinuations and calumny, which I now assert are without foundation in truth and in fact, and are unsupported by any competent evidence, we intend to continue the presentation of our just and righteous cause until truth and justice shall prevail. We do not intend to sit supinely by without asserting our rights until monopoly of this—one of the greatest American industries—shall securely fasten its tentacles about the industry, destroying the rights and property of millions of American citizens and taking toll, as it will eventually,

from the entire American consuming public.

When your Committee made known its desire to investigate our activities through your attorney, Mr. Holland, appearing at our headquarters in the Mayflower Hotel and making a demand that he be allowed to search through our files, I was absent at the time, but Mr. Russell Brown, who was present, conscious of the high plane upon which we had conducted the presentation of our claims, permitted Mr. Holland, without delay or interference of any kind, to go through our entire files, which contained copies of telegrams and letters sent and received by many members of our delegation, many, if not most, of which I had not seen or read.

The following morning, at Mr. Holland's request, I brought these entire files to the Committee and little thought or dreamed that some of them would be perverted, misconstrued, and stretched by the imagination of any Member of this Committee to give them a meaning entirely different from their true import. I believed then that it was the purpose of the Committee to arrive at the truth, to be impartial in its judgment, and to report to the Senate, if at all, only after they had made a full and complete investigation in a spirit of fairness. I am still of the belief that this Committee, when it has completed its investigation, will in all fairness exonerate us from any charge of wrong doing and will uphold and defend the constitutional right of any body of American citizens to petition Congress for a redress of their wrongs. If I have said or shall say anything in criticism of what has occurred, I trust your honorable Committee and the Members thereof will realize that it is done in the spirit of developing truth.

Specific Instances Where Blaine Misstated Facts

Now, if the Committee will bear with me I would call attention to specific instances where statements made on the Senate floor by a Member of your Committee do not conform to the record as made in the hearing before your Body last Friday morning. He said: "* * *. It developed in the testimony that the conduct of the business in the headquarters of this lobby is costing all the way from $1,200 to $1,500 a day. * * *."

That statement was made in spite of the fact that I had testified that our expenses were running about $200 per day to pay for stenographers, our hotel rooms, and the food we ate, and in face of the fact that the Committee had in its possession all bills and statements from which could have been ascertained the exact daily expense.

He stated: "* * *. In the letters that were sent out containing requests for these telegrams from their constituents, they attached a dollar bill or remitted a dollar that might be used to pay for the telegrams. * * *." I had been asked about this particular matter before the Committee, and had stated that, while this matter had been recommended in a telegram received by us at our headquarters, that it had not been done. Was this a deliberate mis-statement?

This Senator stated on the Senate floor, as shown by the Congressional Record: "* * *. Mr. President, they were even willing to trade in the President of the United States on this deal. They proposed to carry to him a rumor that they said was prevalent in the Mid-Continent oil region, that he was a large stockholder in petroleum-producing companies in South America, to extract from him a denial, and then use that denial to advance their cause. * * *."

Denies Statement from President Was Considered

I assert, without fear of contradiction, that this statement is unsupported by any evidence whatever, being a product of the fertile imagination of him who uttered it. He assumed to derive the same from a telegram to me, sent by F. E. Tucker, Executive Secretary of the Independent Petroleum Association of America, from Ardmore, Okla. Mr. Tucker, than whom the President of the United States has no greater admirer in the Nation, sent that confidential telegram to me in solicitude for the President's welfare, upon learning that certain newspapers had published the rumor concerning the President.

I talked to Mr. Tucker that night over the telephone and told him that the rumor should not be dignified by notice of any kind, and the telegram was placed in our confidential files. In referring to this matter, the Senator uses the following language: "* * *. They had a subtle, slimy method, designed to extract some information from the President and from the Chairman of the Committee on Foreign Relations, so that they might use it to advance their cause. * * *."

From this instance and others to which I have referred, I am willing to let your Committee and the Senate judge who is given to the use of "subtle, slimy methods." Furthermore, from an examination of the transcript of these proceedings before the Committee, it appears that this confidential telegram from Mr. Tucker, seized and thus made use of, has not been introduced into or made a part of the record before the Committee. It occurs to me that, if honor were lacking, common decency would have prevented the use thus made of a confidential communication.

I stated in my testimony before the Committee last Friday that, from time to time, business men were arriving from the oil producing States, remaining a day or two and returning home and some of these sent telegrams and wrote letters suggesting certain lines to be pursued in securing support for the tariff on oil. The senator, in presenting the matter on the Senate floor, took the strange position that every suggestion made by anyone, whether a member of our organization or not, had been carried out, although in my direct examination by the Chairman of your Committee and on cross-examination by the other members thereof, I explained the actual facts frankly and openly and I can see no reason or excuse for the Senator in any instance misconstruing and adding to those telegrams and letters in such a manner as to give them a very different meaning from what they actually had.

I would now like to refer to the letter written by Charles Flint to Mr. Brown which was found in our files and concerning which I testified at the hearing that I had not seen, nor even heard it read until it was read to me in the Committee hearing, and that it contained nothing which was acted upon by our organization, but when received was simply put into the files. If it has tended to besmirch or injure any United States Senator, the fault lies not with any of our organization, but with the Senator from Wisconsin who brought it to light.

Innocent Letter Misconstrued For Sinister Purpose

As a matter of fact, there is nothing in the letter which discloses anything other than a desire on the part of Mr. Flint to impress upon our organization that he was really an effective worker for our cause and had seen several Senators in our behalf. It is a perfectly innocent letter, except in the hands of someone with a sinister motive and a nature savage enough to carry it out.

* * *

Gentlemen, we have nothing to fear, and we will not be intimidated. We have done no wrong, and we here and now insist that your Committee complete its investigation and make its report to the United States Senate, giving the true and just analysis of our presentation of the merits of our cause. We have been absolutely open and frank at all times. We have concealed nothing. We have done nothing of which we are ashamed. If it is a crime for a great body of the American people to petition Congress for the redress of wrongs, if when doing so American citizens are to be slandered, maligned, and have their good names drawn through the slime and filth of the imaginings of any man, then God help the United States of America!

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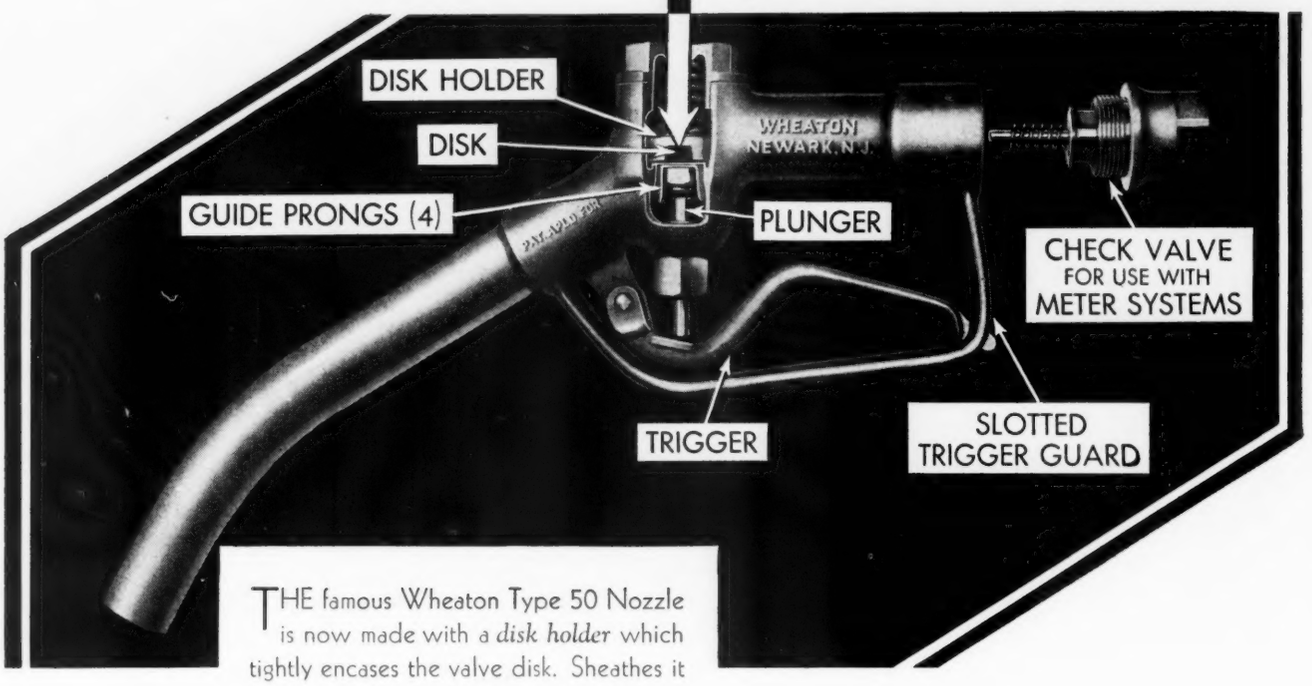

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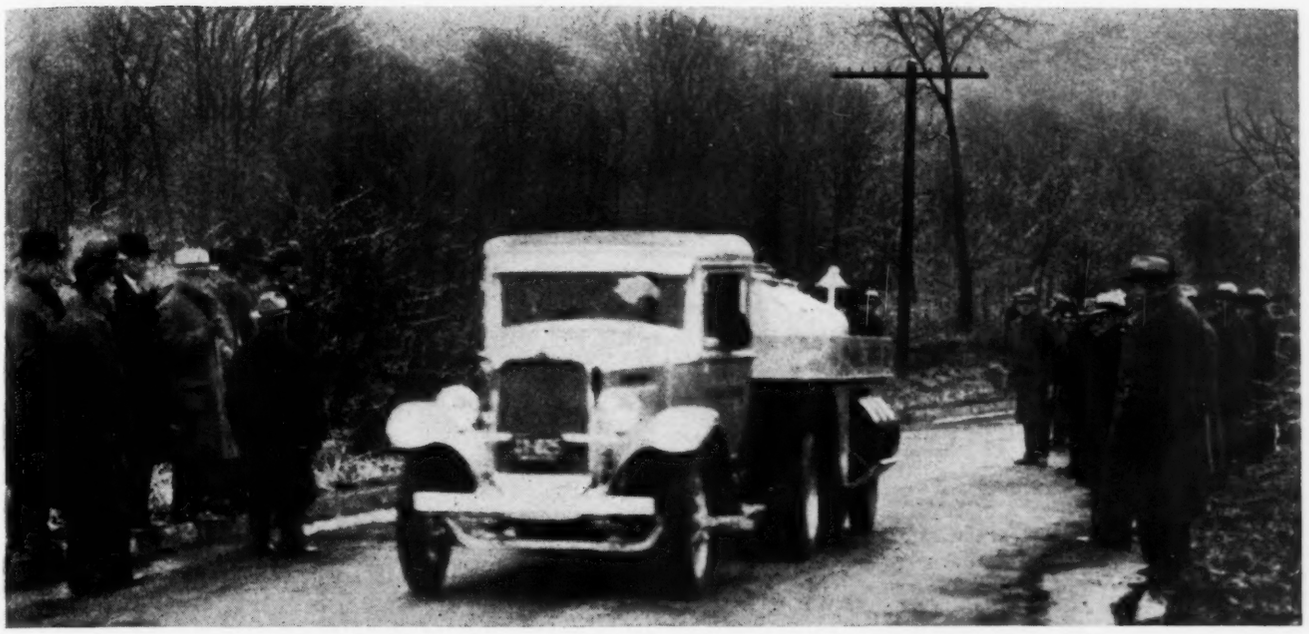


The crowd sees the finish of one of the test pulls. This truck tractor is a GMC

Aluminum Semi-Trailer Shows Greater Speed in Hill Climbing Tests

By R. B. Stafford
N. P. N. STAFF WRITER

TESTS of the first aluminum semi-trailer and gasoline tank, in competition with a steel semi-trailer and steel tank of the same capacity and carrying the same weight load, have shown that greater speed can be attained by use of the lighter metal.

The aluminum job was tested March 18 before about 200 oil and equipment men on Cedar Road at Gates Mills, about 18 miles east of Cleveland, where on April 17, 1929, was held the first competitive demonstration of light duty low capacity semi-trailer equipment for hauling gasoline.

In every case where no mechanical trouble developed in the tractor unit, the tractors were able to haul the aluminum tank and semi-trailer up each of two hills over which the tests were run, in less time than they hauled the steel outfit. Several cases of mechanical or fuel line difficulty were reported among the 10 truck-type tractors used in the tests largely because some of the truck companies put too new equipment into the strenuous tests.

The tests were held under the auspices of the National Refining Co., Cleveland, primarily to see how much time could be saved by the use of aluminum over steel. In addition however, the tests gave the oil company transportation men an opportunity to see the late models of light trucking units in action under uniform operating conditions. What they did is recorded in tables that accompany this article. S. A. White, purchasing agent for the National, arranged most of the details of the test.

S. A. White, National Refining Co., Cleveland, ringmaster of the hill climbing tests

The two trailers used were made by Fruehauf Trailer Co., Detroit, and the tanks by the Davis Welding & Mfg. Co., Cincinnati, for the National Refining Co. The steel unit has been in National Refining Co. service and the aluminum unit was completed only a few days ago. It had been engineered and built since the tests given aluminum tank compartments by the Davis company in Cincinnati last December.

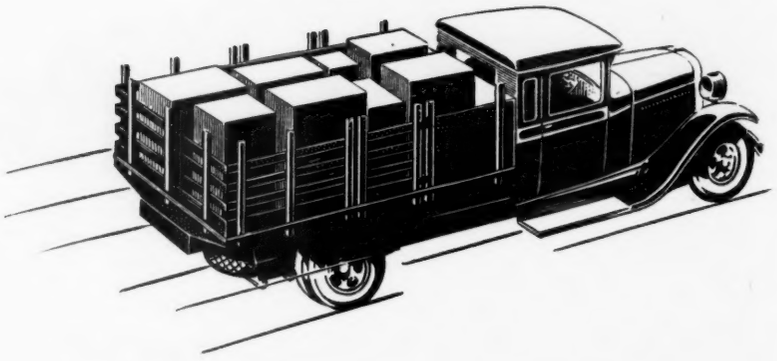
The semi-trailer is of the drop-frame type of construction. It weighs 1600 pounds, as compared with 2110 pounds for a pressed steel frame trailer of the same capacity with which it competed. In the tests last April, the Fruehauf trailer used weighed 2400 pounds.

Steel is used in the aluminum trailer for the axle, brake drums, springs, brake rods, brake cam and king pin. The cylinder of the BK Booster brakes is of brass. All castings on the unit including spring brackets, upper fifth wheel, support wheels, supports, and rear wheels are of cast aluminum.

The frame is fabricated of aluminum alloy plates and angle bars. An aluminum alloy sheet forms a support-

(*Continued on Page* 38)

More profit per load hauled



There is a compelling reason for the universal use of Dodge Trucks—a compelling reason why thousands engaged in the oil industry use them—a compelling reason why one will be a profitable investment for you . . . These workers haul at low cost and therefore increase the profits of their owners.

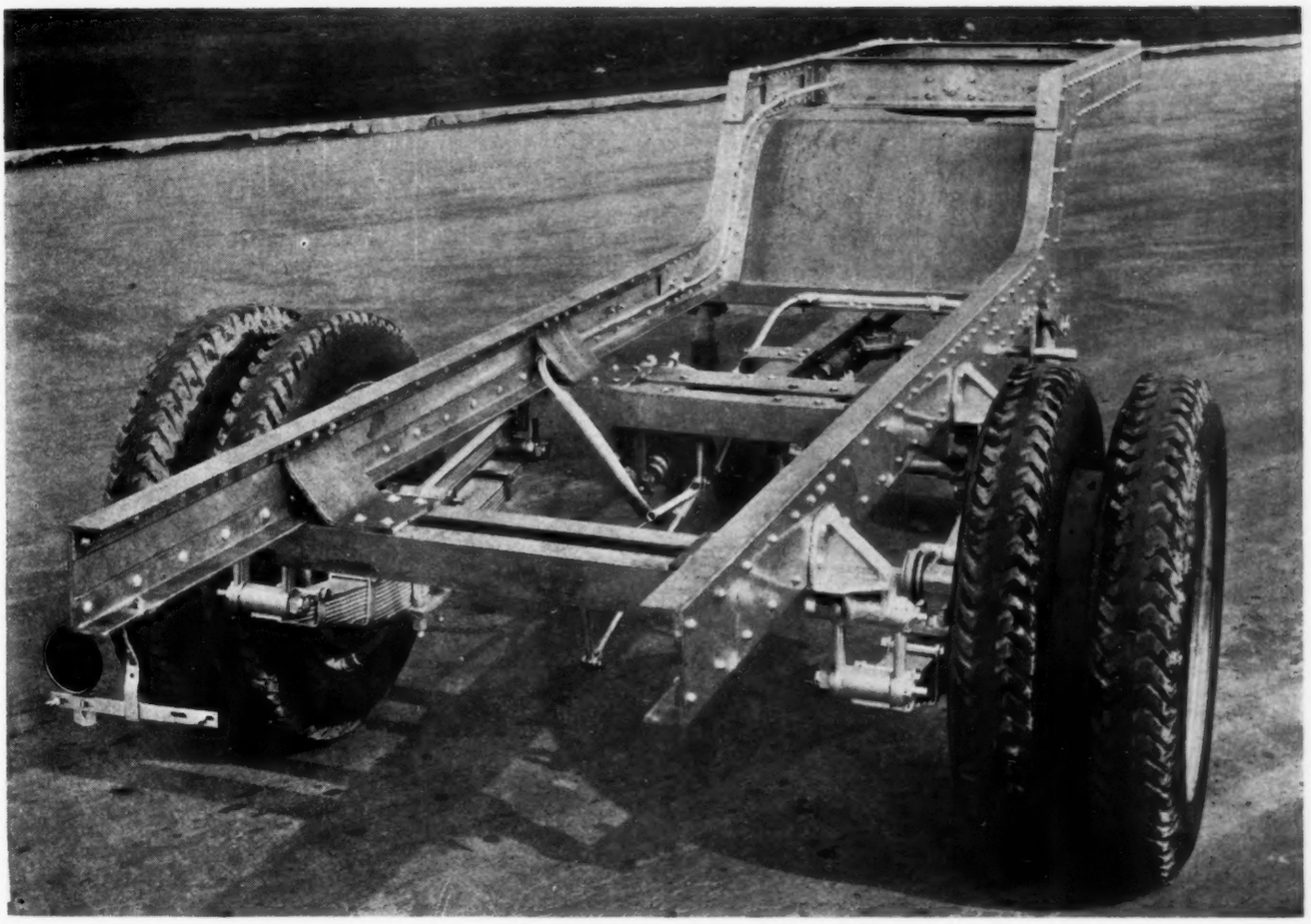
How Dodge Trucks lower hauling costs is noonday clear to users. They are speedy in get-away and on the open road—they are time-savers. They are dependable—work faithfully with the minimum of time off and minimum need for upkeep. They serve at low cost and serve long. They are good-looking—goodwill builders. They please drivers by their comfort and performance—increase driver efficiency.

For proof that a Dodge Truck will lower your hauling costs, see your Dodge Brothers dealer. Inspect the type that fits your needs. Buy it complete with body. Count on greater savings per load hauled, greater profit.

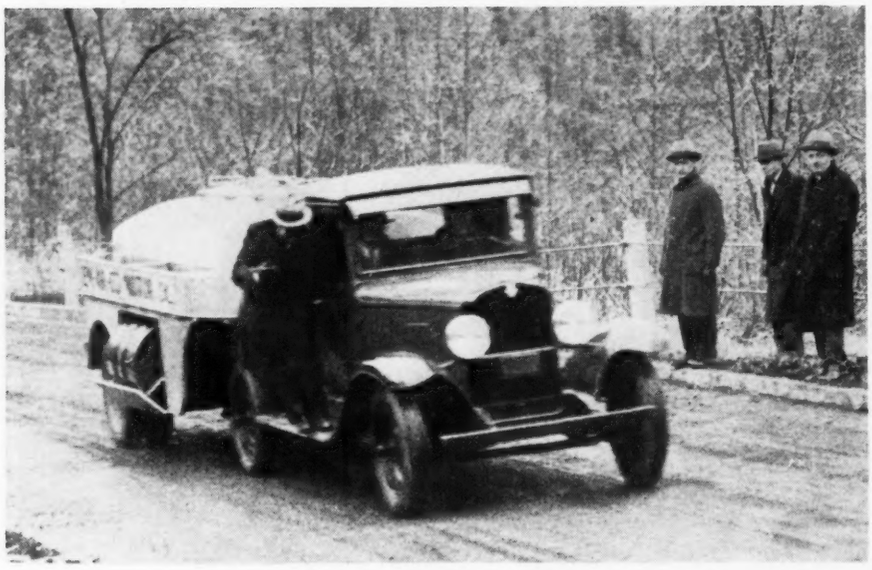
DODGE TRUCKS

First of Its Kind: All Aluminum Trailer and Tank

The completed job before it was loaded for the Gates Mill tests. The tank and trailer are coated with clear lacquer over the polished aluminum. The tractor is painted all over with aluminum lacquer



The aluminum semi-trailer ready for the tank, showing the chassis detail. Construction is similar to a fabricated steel semi-trailer but more massive to compensate for the difference in tensile strength between steel and aluminum. Aluminum is used for all parts except the springs, axle, brake drums, brake cam, break rods, cam wheels, and brake cylinder. The cylinder is brass



Ice decorated the trees along the course of the Gates Mill tests. Here is a Chevrolet pulling the aluminum trailer and tank up a 10 per cent grade

ing apron between the sides of the frame at the drop.

Thirteen hundred pounds of the trailer's own weight rides on the rear axle and 300 pounds on the king pin. The semi-trailer has a wheelbase of 110 inches, that is, the distance between the king pin of the fifth wheel and the center of the rear axle. Dual wheels with 30 x 5-inch pneumatic tires complete the assembly.

The Davis Clipper tank mounted on the aluminum semi-trailer, uses aluminum alloy in the bulkheads, wrapper sheets, castings, finish bands, bolsters, bucket box, can rack and other sheet metal panels, and in the piping and fittings, except the valves. Running boards, bucket box floor and barrel rack floors are of oak. The Davis company estimated the saving in weight, if aluminum were used for the floors instead of wood, at 200 pounds.

The tank and its equipment weighs 1935 pounds, according to data given out at the tests, as compared with 3345 pounds for the steel tank and equipment in the competing unit.

Both the steel and the aluminum jobs contain standard Davis equipment, such as emergency valves, and double bulkhead construction.

The greatest modification from the standard Davis tank construction was the use of butt instead of lap welds. The bulkheads are convex flanged and the flanges are welded to the wrapper sheets. This practice was recommended for aluminum welding by engineers of the Aluminum Co. of America, who co-operated with both the Davis and Fruehauf companies in the building of the tank and trailer.

No final price figures have been arrived at for the aluminum equipment but Mr. White said it would be approximately double that of the steel job.

Two aluminum drums were being built by the Draper Mfg. Co., Cleveland, for use on the aluminum trailer but did not reach the hills in time for the tests.

The tests were held under adverse weather conditions. The temperature was slightly below freezing although the rain which fell the night before the tests and at intervals during March 18 did not freeze on the road. It did freeze on grass and trees, however.

The roadways were wet, which made traction difficult especially on a 965-foot dirt hill which had a maximum grade of 15 per cent. On the steeper grades of a second hill, 3700 feet long and paved with brick, cinders had been sprinkled.

Two men rode with each driver. One was an observer and recorder, and

(*Continued on Page* 44)

Weights of Trailers, Dead and Pay Loads

	Steel pounds	Aluminum pounds	Weight Saving pounds
750-gallon 4-compartment with bucket box, drop panel side racks, drum carriers, emergency valves, etc.	3,345	1,935	1,410
Drop-frame Fruehauf semi-trailer	2,110	1,600	510
Total dead weight	5,455	3,535	1,920
750 gals. White Rose gasoline	4,650	4,650	.....
Two 55-gal. drums En-ar-co motor oil 465 lbs.	930	930	.....
Total weight trailer and load	11,035	9,115	1,920

Aluminum Trailer and Tank

HILL No. 1 — Distance 965 feet, Narrow Dirt Road, Winding Hill

Feet	Grades Percent	GMC Time	Gear	Autocar Time	Gear	Mack Time	Gear	Reo Time	Gear	White Time	Gear	Diamond T Time	Gear	Indiana Time	Gear	Dodge Time	Gear	Chevrolet Time	Gear	Ford Time	Gear
150	9	9s	1	10s	2	11s	1-2	10s	1-2	10s	1-2	13s	1	10s	1-2	15s	1	12s	1	19s	1
300	12	19s	2	18s	2	21s	2	19s	2	20s	2	27s	2	19s	2	30s	1	21s	2	38s	1
450	7	28s	2	26s	2	35s	2	29s	2	30s	2	44s	1	31s	2	49s	1	31s	2	52s	1
600	12	37s	2	33s	2	47s	2	37s	2	40s	2	59s	1	42s	2	10s	1	41s	2	1m 15s	1
750	13	48s	2	44s	2	1m 1s	2	46s	2	50s	2	1m 16s	1	53s	1	1m 33s	1	53s	2	1m 34s	1
900	11	1m	2	54s	2	1m 15s	2	56s	2	1m 2s	1	1m 34s	1	1m 8s	1	1m 58s	1	1m 8s	1	1m 54s	1
965	9	1m 5s	2	59s	2	1m 22s	2	1m 2s	2	1m 8s	1	1m 42s	1	1m 14s	1	2m 8s	1	1m 13s	2	2m 1s	1

Steel Trailer and Tank

HILL No. 1 — Distance 965 feet, Narrow Dirt Road, Winding Hill

Feet	Grades Percent	GMC Time	Gear	Autocar Time	Gear	Mack Time	Gear	Reo Time	Gear	White Time	Gear	Diamond T Time	Gear	Indiana Time	Gear	Dodge Time	Gear	Chevrolet Time	Gear	Ford Time	Gear
150	9	12s	1	11s	2	12s	1-2	11s	2	11s	1-2	15s	1	10s	1	17s	1	10s	1-2	13s	1
300	12	21s	2	20s	2	24s	1	20s	2	21s	2	33s	1	21s	2	39s	1	21s	1	28s	2
450	7	32s	2	30s	2	39s	1	31s	2	32s	2	49s	1	34s	1	1m 1s	1	34s	1	46s	2
600	12	43s	2	41s	2	53s	1	41s	2	42s	2	1m 6s	1	46s	1	1m 21s	1	47s	1	1m 7s	2
750	13	53s	2	52s	1	1m 6s	1	52s	2	54s	1	1m 23s	1	57s	1	1m 44s	1	1m	1	1m 32s	2
900	11	1m 8s	2	1m 7s	1	1m 22s	1	1m 6s	1	1m 8s	1	1m 42s	1	1m 12s	1	2m 11s	1	1m 15s	1	2m	2
965	9	1m 15s	2	1m 15s	1	1m 28s	1	1m 13s	1	1m 15s	1	1m 50s	1	1m 18s	1	2m 22s	1	1m 20s	1	2m 9s	2

ADVERTISING PAGES REMOVED

Oil Company Truck, and Trailer Men at Tests

The oil crowd. Left to right: W. L. Mead, Pennzoil Co., Oil City, Pa.; J. R. Taylor, Vacuum Oil Co., New York; A. W. Kenerson, Standard Oil Co. of Ohio, Cleveland; P. P. Pierce, Vacuum Oil Co., New York; H. W. (Zip) Kizer, The Texas Co., New York; S. A. (Sid) White, National Refining Co., Cleveland; T. C. Fraser, Standard Oil Co. of Pennsylvania, Philadelphia; J. F. Winchester, Standard Oil Co. of New Jersey, Newark, N. J.; H. T. Rickert, Pure Oil Co., Chicago; A. F. Coleman, Standard Oil Co. of New York, New York; and High B. Strachan, Standard Oil Co. of Ohio, Cleveland

Representatives of the Fruehauf Trailer Co., Detroit which built the aluminum semi-trailer. Left to right: Harry S. Moore, George W. Thomas, F. L. Tulley, W. E. Fletcher, C. L. Schneider and S. B. Kenerson

Climbing Tests Under Way: Part of Witnesses

The Autocar which made the fastest time with both the aluminum and steel trailer and tank units

Part of the crowd at the top of the main hill bantering and talking between "heats"

A Mack pulls past the busses that took many of the 200 spectators to the Gates Mill tests

Trailmobile

MEETS EVERY TEST

Every day—in every section of the country, TRAILMOBILE meets the most exacting test of all—the daily service demands of leading oil companies.

TRAILMOBILE'S ability to slash investment, to haul more gallons per trip and to make more trips per day enables superintendents of transportation to establish new records in

Low Cost Per Gallon Mile

Coupled with its advantage of cheaper transportation are those of safety and dependable service under all operating conditions. And the advertising value of TRAILMOBILE'S fine appearance speaks for itself.

Why not subject TRAILMOBILE to a test in your own service? We will be glad to make arrangements at your request.

AUTOMATIC COUPLING-UNCOUPLING IS CHEAPER QUICKER SAFER

Write for Oil Industry Portfolio containing highway weight regulations, etc.

We will make Aluminum, Pressed Steel or Alloy Trailers to order. Prices and specifications on application.

THE Trailmobile CO.

Manufacturers of automatic and manual semi-trailers: four wheel trailers: pole and drag trailers.

3102 ROBERTSON AVE.
OAKLEY, CINCINNATI, OHIO

Major Specifications of Truck Tractors

Make Model	Bore Inches	Stroke Inches	Gear Ratio To 1	Rear Tires*	Wheelbase Inches
GMC T-25 6 cyl. Buick	3 7/16	4 5/8	5.88	30 x 5 DP	138
Autocar SA 6 cyl.	4	4 1/2	6.12	30 x 5 DP	138
Mack BL 6 cyl.	3 1/4	5	6.80	30 x 5 DP	138
Reo FA 1½ ton 6 cyl.	3 3/8	5	5.70	30 x 5 DP	137
White 60 6 cyl.	3 1/2	4 1/2	5.88	30 x 5 DP	138
Diamond T 215 6 cyl.	3 3/8	4	6.30	30 x 5 DP	135 1/8
Indiana 89 6 cyl.	3 3/8	4 5/8	6-2/7	30 x 5 DP	137
Dodge 1 ton, 6 cyl.	3 3/8	3 7/8	6.375	32 x 6 DP	130
Chevrolet 1½ ton 6 cyl.	3 1/16	3 3/4	5.428	30 x 5 SP	131
Ford AA 4 cyl.	3 7/8	4 1/4	6.60	32 x 6 DP	131 1/2

*DP Dual pneumatics. SP Single pneumatics.

Time Savings of Aluminum Equipment over Steel Equipment by Various Makes of Truck Tractors.

Hill No. 1, 965 feet long, dirt.

GMC	10 seconds
Autocar	16 seconds
Mack	6 seconds
Reo	11 seconds
White	7 seconds
Diamond T	8 seconds
Indiana	4 seconds
Dodge	16 seconds
Chevrolet	7 seconds
Ford	8 seconds

Hill No. 2 3700 feet long, paved with brick.

GMC	17 seconds
Autocar	17 seconds
Mack	22 seconds
Reo	27 seconds
White	38 seconds
Diamond T	27 seconds
Dodge	2 minutes 49 seconds
Chevrolet	36 seconds
Ford	47 seconds

Indiana did not finish hill No. 2 with steel trailer. Ford lost a minute with aluminum job because of mechanical difficulty.

one a timer. The time and gear being used were recorded at 150-foot intervals. Last year time and gear were recorded at 100-foot intervals but this short distance made recording difficult where the trucks gained speed on the gentler grades.

Men who checked and timed were H. B. Strachan, Standard Oil Co. of Ohio, and L. E. Stanford, E. M. Hartman and W. E. Thibedeaux, National Refining Co.

In addition to the foregoing the oil group at the tests included: J. F. Winchester, Standard Oil Co. of New Jersey; A. F. Coleman, Standard Oil Co. of New York; H. W. (Zip) Kizer, The Texas Co.; A. W. Kenerson, Standard Oil Co. of Ohio; Paul P. Pierce and J. R. Taylor, Vacuum Oil Co.; H. T. Rickert, Pure Oil Co.; Thomas C. Fraser, Standard Oil Co. of Pennsylvania; W. L. Mead, Pennzoil Co., and Mr. White, National Refining Co., who was sponsor and ringmaster of the tests.

The great majority of the specta-

(*Continued on Page* 49)

Aluminum Trailer and Tank

HILL No. 2 — Distance 3,700 feet, Brick Pavement, Winding Hill

Feet	Grades Percent	GMC Time	Gear	Autocar Time	Gear	Mack Time	Gear	Reo Time	Gear	White Time	Gear	Diamond T Time	Gear	Indiana Time	Gear	Dodge Time	Gear	Chevrolet Time	Gear	Ford Time	Gear
150	12½	12s	1	10s	2	10s	1-2	9s	2	10s	1-2	12s	1	10s	1-2	22s	1	10s	1	11s	2
300	11	21s	2	18s	2	21s	2	18s	2	19s	2	27s	2	20s	2	47s	1	19s	2	23s	2
450	10	30s	2	26s	2	32s	2	26s	2	28s	2	41s	1	29s	2	1m 11s	1	27s	2	35s	2
600	10	40s	2	35s	2	43s	2	36s	2	37s	2	1m	1	40s	2	1m 39s	1	38s	2	50s	1
750	10	49s	2	43s	2	55s	2	44s	2	46s	2	1m 14s	1	50s	2	2m 3s	1	46s	2	1m 5s	1
900	10	58s	2	51s	2	1m 9s	2	53s	2	53s	2	1m 30s	1	1m 2s	2	2m 30s	1	56s	2	1m 22s	1
1050	10	1m 9s	2	1m	2	1m 23s	1	1m 2s	2	1m 7s	2	1m 46s	1	1m 15s	2	2m 56s	1	1m 7s	2	1m 38s	1
1200	9	1m 19s	2	1m 9s	2	1m 39s	1	1m 11s	2	1m 17s	2	2m 2s	1	1m 28s	2	3m 23s	1	1m 17s	2	1m 54s	1
1350	5	1m 29s	2	1m 18s	2	1m 54s	2	1m 20s	3	1m 27s	2	2m 17s	2	1m 41s	2	3m 47s	1	1m 27s	2	2m 11s	2
1500	4	1m 37s	3	1m 25s	3	2m 4s	3	1m 28s	3	1m 34s	3	2m 29s	3	1m 50s	3	4m 7s	2	1m 35s	3	2m 24s	2
1650	2½	1m 47s	3	1m 30s	3	2m 12s	3	1m 34s	3	1m 41s	3	2m 38s	3	1m 57s	3	4m 20s	2	1m 41s	3	2m 32s	2
1800	3½	1m 55s	3	1m 35s	3	2m 18s	3	1m 40s	3	1m 47s	3	2m 44s	3	2m 3s	3	4m 34s	2	1m 47s	3	2m 40s	2
1950	6	2m	3	1m 41s	3	2m 24s	3	1m 45s	3	1m 53s	3	2m 52s	3	2m 8s	3	4m 47s	2	1m 53s	3	2m 48s	2
2100	7	2m 7s	3	1m 46s	3	2m 31s	3	1m 51s	3	2m 1s	2	3m 1s	2	2m 14s	3	5m 5s	2	1m 58s	2	*4m 10s	2
2250	8	2m 15s	2	1m 52s	3	2m 39s	2	1m 57s	3	2m 18s	1	3m 16s	2	2m 22s	2	5m 24s	2	2m 7s	2	4m 26s	2
2400	8½	2m 26s	2	1m 58s	2	2m 50s	2	2m 4s	2	2m 39s	1	3m 29s	2	2m 31s	2	5m 43s	2	2m 15s	2	4m 39s	2
2550	9	2m 30s	2	2m 6s	2	3m	2	2m 17s	2	2m 53s	1	3m 41s	2	2m 40s	2	6m 2s	2	2m 23s	2	4m 52s	2
2700	10	2m 35s	2	2m 14s	2	3m 10s	2	2m 22s	2	3m 17s	1	3m 54s	2	2m 48s	2	6m 23s	2	2m 31s	2	5m 3s	1
2850	10	2m 44s	2	2m 21s	2	3m 20s	2	2m 30s	2	3m 30s	1	4m 11s	1	2m 58s	2	6m 45s	2	2m 39s	2	5m 20s	1
3000	10	2m 54s	2	2m 29s	2	3m 31s	2	2m 38s	2	3m 42s	1	4m 26s	1	3m 8s	2	7m 6s	2	2m 48s	2	5m 36s	1
3150	10	3m 3s	2	2m 38s	2	3m 42s	2	2m 46s	2	3m 54s	1	4m 41s	1	3m 18s	2	7m 29s	2	2m 57s	2	5m 53s	1
3300	8	3m 14s	2	2m 45s	2	3m 54s	2	2m 55s	2	4m 5s	2	4m 56s	1	3m 29s	2	7m 51s	2	3m 6s	2	6m 10s	1
3450	7½	3m 22s	2	2m 54s	3	4m 5s	2	3m 4s	2	4m 15s	2	5m 11s	2	3m 40s	2	8m 11s	2	3m 15s	2	6m 27s	2
3600	7	3m 31s	2	3m 1s	3	4m 13s	2	3m 11s	2	4m 24s	2	5m 21s	2	3m 47s	2	8m 27s	2	3m 22s	3	6m 40s	2
3700	6	3m 36s	2	3m 6s	3	4m 19s	2	3m 16s	2	4m 30s	2	5m 30s	2	3m 52s	2	8m 39s	2	3m 27s	3	6m 47s	2

*Lost 1 minute in stopping.

Steel Trailer and Tank

HILL No. 2 — Distance 3,700 feet, Brick Pavement, Winding Hill

Feet	Grades Percent	GMC Time	Gear	Autocar Time	Gear	Mack Time	Gear	Reo Time	Gear	White Time	Gear	Diamond T Time	Gear	Indiana Time	Gear	Dodge Time	Gear	Chevrolet Time	Gear	For t Time	Gear
150	12½	11s	1-2	10s	2	11s	1-2	10s	2	10s	1-2	15s	1	10s	1	16s	1	10s	1-2	12s	1-2
300	11	22s	2	18s	2	24s	1-2	20s	2	21s	2	31s	1	22s	2	37s	2	20s	2	25s	2
450	10	32s	2	26s	2	36s	1	29s	2	30s	2	46s	1	33s	2	54s	1	30s	1	38s	1
600	10	43s	2	37s	2	52s	1	40s	2	41s	2	1m 3s	1	47s	1	1m 16s	1	43s	1	56s	1
750	10	53s	2	45s	2	1m 4s	1	49s	2	52s	2	1m 18s	1	58s	1	1m 35s	1	54s	1	1m 15s	1
900	10	1m 3s	2	55s	2	1m 18s	1	58s	2	1m 3s	2	1m 34s	1	1m 11s	1	1m 54s	1	1m 7s	1	1m 38s	1
1050	10	1m 14s	2	1m 5s	2	1m 31s	1	1m 9s	2	1m 14s	2	1m 51s	1	1m 23s	1	2m 14s	1	1m 19s	1	2m 1s	1
1200	9	1m 25s	2	1m 15s	2	1m 45s	1	1m 19s	2	1m 25s	2	2m 7s	1	1m 35s	1	2m 34s	1	1m 32s	1	2m 25s	1
1350	5	1m 36s	3	1m 25s	2	1m 58s	1	1m 30s	2	1m 37s	2	2m 23s	1	1m 46s	1	2m 54s	2	1m 44s	2	2m 48s	1
1500	4	1m 45s	3	1m 33s	3	2m 9s	2	1m 35s	3	1m 46s	2	2m 35s	2	1m 56s	2	3m 7s	3	1m 52s	3	3m 3s	2
1650	2½	1m 52s	3	1m 39s	3	2m 16s	2	1m 45s	3	1m 53s	3	2m 44s	3	2m 3s	2	3m 16s	3	1m 59s	3	3m 14s	2
1800	3½	1m 58s	3	1m 44s	3	2m 24s	2	1m 52s	3	1m 59s	3	2m 52s	3	2m 9s	2	3m 25s	3	2m 6s	3	3m 23s	2
1950	6	2m 4s	3	1m 49s	3	2m 31s	2	1m 57s	3	2m 5s	3	3m	3	2m 20s	2	3m 33s	2	2m 12s	3	3m 33s	2
2100	7	2m 11s	3	1m 55s	3	2m 39s	2	2m 4s	3	2m 11s	3	3m 12s	2	Motor		3m 45s	1	2m 20s	2	3m 42s	2
2250	8	2m 18s	2	2m 1s	3	2m 43s	2	2m 12s	2	2m 19s	2	3m 28s	2	Ceased		4m 3s	1	2m 28s	2	3m 54s	2
2400	8½	2m 29s	2	2m 8s	3	2m 57s	2	2m 21s	2	2m 28s	2	3m 46s	2	Speedometer		4m 21s	1	2m 36s	2	4m 4s	2
2550	9	2m 37s	2	2m 18s	3	3m 8s	2	2m 29s	2	2m 37s	2	4m 3s	1	Reading		4m 39s	1	2m 45s	2	4m 16s	2
2700	10	2m 47s	2	2m 26s	3	3m 18s	2	2m 38s	2	2m 46s	2	4m 19s	1	319 miles		4m 58s	1	2m 54s	2	4m 28s	2
2850	10	2m 58s	2	2m 35s	3	3m 32s	1	2m 48s	2	2m 57s	2	4m 35s	1	.....		5m 17s	1	3m 5s	2	4m 43s	2
3000	10	3m 8s	2	2m 43s	3	3m 45s	1	2m 59s	2	3m 7s	2	4m 51s	1	.....		5m 37s	1	3m 15s	2	4m 57s	2
3150	10	3m 18s	2	2m 54s	3	3m 59s	1	3m 9s	2	3m 18s	2	5m 6s	1	.....		5m 56s	1	3m 27s	2	5m 13s	2
3300	8	3m 29s	2	3m 2s	3	4m 12s	1	3m 20s	2	3m 28s	2	5m 21s	1	.....		6m 16s	1	3m 39s	2	5m 30s	2
3450	7½	3m 39s	2	3m 10s	3	4m 25s	2	3m 30s	2	3m 38s	2	5m 36s	2	.....		6m 32s	2	3m 49s	2	5m 42s	2
3600	7	3m 47s	2	3m 18s	3	4m 35s	2	3m 38s	2	3m 46s	2	5m 48s	2	.....		6m 47s	2	3m 58s	2	5m 53s	2
3700	6	3m 53s	2	3m 23s	3	4m 41s	2	3m 43s	2	3m 52s	2	5m 57s	2	.....		6m 50s	2	4m 3s	2	6m	2

COLUMBIAN

SEMI-TRAILER UNITS

STILL WEIGH LESS!

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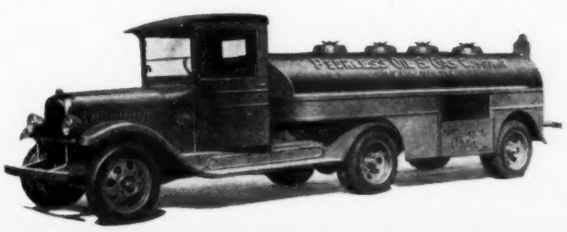
COLUMBIAN
754 Gal. ALL STEEL Integral Frame
Semi-Trailer Unit

Gross Weight of Complete Unit Tractor and Trailer	7271 lbs.
754 Gallons Gasoline and 110 Gals. Oil	5509 lbs.
Total Gross Weight of Unit, Loaded	12,780 lbs.

See Nat'l Pet. News April 24, 1929, page 33

ORDINARY MANUFACTURE
750 Gal. ALL ALUMINUM Drop Frame
Semi-Trailer Unit

Gross Weight of Complete Unit Tractor and Trailer	6685 lbs.
750 Gallons of Gasoline and 110 Gals. of Oil	5580 lbs.
Total Gross Weight of Unit, Loaded	12,265 lbs.



COLUMBIAN
750 Gal. ALL ALUMINUM Integral Frame
Semi-Trailer Unit

Gross Weight of Complete Unit Tractor and Trailer	5100 lbs.
750 Gallons of Gasoline and 110 Gals. of Oil	5580 lbs.
Total Gross Weight of Unit, Loaded	10,680 lbs.

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Some Spectators of Trailer and Truck Test

Joe Mendelson, Atlas Tire & Supply Co., Cleveland; J. G. Bohart, Sinclair Automobile Service Corp., Chicago, and J. C. Byers, manager of the Sinclair one-stop service station in Cleveland. Mr. Mendelson is lessee of the tire store and repair shop at the Sinclair station

The campfire which only accentuated the chilliness of the weather the day of the tests. This is what F. C. Buchanan, behind the smoke screen at the extreme right, called a "buffalo chip" fire in the western plains parlance. Augustine Davis Jr., president of Davis Welding & Mfg. Co. is second from left

W. E. Fletcher, Fruehauf Trailer Co., Detroit; F. C. Buchanan, Columbian Steel Tank Co., Kansas City, and Hugh K. Reilly, Davis Welding & Mfg. Co., Cincinnati, friendly competitors

tors were tank, tr[illegible] gineers and equipment men whose duty is to serve the oil industry.

Inquiries were reported to have been made during the tests for 16 aluminum trailers and tanks and it became known that the Standard Oil Co. of New York had ordered four aluminum tanks for trial in each of its four marketing divisions.

The tests brought praise from the company that competed with the Davis company a year ago when all steel equipment was tried on the Gates Mills hills. This concern was the Columbian Steel Tank Co. of Kansas City, whose sales director, F. C. Buchanan, witnessed this year's tests.

"I'm glad to see the oil industry [illegible] interest in deadweight saving which we have been advocating for ten years," Mr. Buchanan said. "Elimination of deadweight means increasing the payload. Sid White is to be congratulated on the success of these tests."

Mr. Buchanan proposed that next year the truck tank, trailer and oil companies get together and hold speed and hill pulling tests for heavy duty as well as light duty motor equipment.

The accompanying tables give the major dimensions of the truck tractor units, the weights of the trailers, and tanks with their loads, and the differences in time made with the aluminum unit from the steel unit.

Relation of Distillation Test To Effective Volatility

WASHINGTON, March 24

LABORATORY and road tests of various automobile engines to indicate how the relationship between A.S.T.M. distillation and effective volatility applies to commercial types of motor car engines will be disclosed in a discussion of motor fuel volatility by Dr. George Granger Brown, University of Michigan, and C. L. Nickolls, at the meeting of the division of petroleum chemistry, American Chemical Society, at Atlanta, April 7 to 12. Dr. Brown is research director of the Natural Gasoline Association.

These tests have shown Dr. Brown points out, that the 10 per cent point on the A.S.T.M. distillation indicates the lowest temperature at which the car can be operated; the 35 per cent point the lowest temperature at which the car can be operated without the choke; and the 60 or 65 per cent the lowest temperature at which entirely satisfactory performance can be obtained on modern cars equipped with accelerating devices. Fuels which have their 90 per cent points below 392 degrees F., show a noticeable loss in power and acceleration when the motor is thoroughly warmed up and operated with heated manifold, he points out.

An improved method for the determination of the quantity and quality of products obtainable from crude is also to be discussed. "True Boiling Crude Analysis" is the name of the paper that will discuss this method, to be presented by G. A. Beiswenger and William C. Child. It will also tell how maximum yields of more valuable products can be determined and at the same time how yields may be correlated with refinery operation. Molecular weights and flash temperatures necessary for pipe still operations are to be given.

"The Problem of Establishing the Identity and Purity of a Hydrocarbon Obtained from Petroleum" calls inadequate the evidence which has tended to support the identity and purity of most of the hydrocarbons reported as having been isolated from petroleum. Suitable tests for purity and evidence for identity are described and a procedure is suggested in this paper by Edward W. Washburn.

How the preparation of pure normal paraffin hydrocarbons from gasoline can be achieved by combining fractional distillation and treatment with chlorosulfonic acid is revealed in a paper by Alvin F. Shepard and Albert L. Henne entitled "The Purification of Normal Paraffin Hydrocarbons by Chlorosulfonic Acid Treatment."

In an address to be delivered by Julius Hyman and C. R. Wagner, Pure Oil Co., on the "Autoxidation of the Amylenes," work has been done with the amylenes, prototypes of the olefine constituents of cracked gasolines, because of complex nature of such gasolines. In the preparation of the amylenes, new and interesting data were obtained as to the nature and physical constants of several of the group.

"The Behavior of Mercaptans with Copper Sulfide" by K. H. Slagel and E. Emmet Reid; "The partition of Mercaptans Between Benzene and Caustic Soda Solutions" by L. M. Ellis, Jr. and E. Emmet Reid; "The Reactions of Some Mercaptans with Alkaline Sodium Plumbite Solutions" by Emil Ott and E. Emmet Reid; and "The Autoxidation of Lead Mercaptides" by Emil Ott and E. Emmet Reid are also scheduled for the morning session of April 9.

Completing the program of the petroleum division will be a paper on "Desulfurization, Polymerization, and Knock Rating of Cracked Distillates as a Function of Sulfuric Acid Treatment" by Gustav Egloff, Jacque C. Morrell and W. F. Faragher, of the Universal Oil Products Co., Chicago.

A 20 minute discussion of grease problems will follow the regular scheduled program.

An announcement from the American Chemical Society states that Thomas Midgley, Jr., research Chemist for the General Motors Research Corp. and discoverer of Ethyl gasoline, has discovered a new refrigerant which, it is said, will bring about tremendous changes in automatic refrigeration. Details will be announced at the Atlanta meeting.

Oil and Truck Men See Tires Made

CLEVELAND, March 20.—About 40 oil, truck, trailer and equipment men who attended the aluminum trailer and tank tests at Gates Mills, O., were guests of the Goodyear Tire & Rubber Co., March 19 at Akron.

The party left Cleveland in the morning by bus and visited the new Goodyear-Zeppelin hangar, a structure 1200 feet long, 435 feet wide and 211 feet high. It is of arched steel construction with no supporting columns between the sides.

Afterward a visit was paid to the blimp base at Wingfoot lake. Lunch was served at the Goodyear factory. A trip was made through the truck tire manufacturing department and the tire testing laboratory.

Blending-in-Transit Rate Suspended by I.C.C.

WASHINGTON, March 22.—A blending-in-transit rate on natural gasoline from Louisiana and Arkansas to central states destinations through Dupo, Ill., was suspended for seven months today by the Interstate Commerce Commission. The rate was to apply from points on the Yazoo and Mississippi railroad to Dupo on the East St. Louis, Columbia & Waterloo, a small road in the East St. Louis district.

The rate would have permitted shipment of natural gasoline to Dupo, blending there and subsequent shipment on a single through rate, plus $5 to $7 per car, to central states destinations. It was published March 14, to have been effective March 22 and seems to have been overlooked by railroads and refiners generally until March 21.

Representatives of other railroads complained of the innovation, claiming that it would spread and demoralize the whole freight rate structure. E. W. Sieboldt, traffic manager for the Shell Petroleum Corp., protested on the ground that it would give Mid-Continent refiners an advantage over Mississippi river refiners.

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Ten Billion Barrels of Oil May Come From the Coastal Area

By Paul Wagner
N. P. N. STAFF WRITER

NEW ORLEANS, March 22

POSSIBLE future production of the Coastal area of this country, extending 150 miles from the Gulf of Mexico shore into Texas and Louisiana, is placed at ten billion barrels by Dr. Donald C. Barton, consulting geophysicist of Houston.

Dr. Barton made this estimate when speaking before the fifteenth annual meeting of the American Association of Petroleum Geologists in New Orleans, March 20 to 22.

He gave this territory greater possible future estimated production than the U. S. Geological Survey, in 1921 foresaw for the entire United States.

Dr. Barton divided his estimates as follows: for shallow fields in the old salt dome area, two billion barrels sure, two and a half billion barrels probable, and three billion barrels possible.

New shallow domes of areas extended by geophysical work were credited with one billion barrels certain reserve, two billion barrels probable and four billion barrels possible.

He credited non-salt dome fields southwest of Markham, Texas, of the Refugio type, as certain to produce a half billion barrels, probably a billion barrels and possibly three billion barrels.

Discussing extensions, Dr. Barton spoke of the discovery of production at lower stratigraphic levels than the older Miocene and Oligocene horizons, which have yielded most of the Gulf Coastal oil of the past. He also referred to depth extensions on the flanks of salt domes in addition to stratigraphic extensions and areal extensions.

In the Coastal territory, recent discoveries in the Jackson and Cook Mountain beds have opened up vast areas of possible production at levels below the Miocene and Oligocene horizons. Raccoon Bend, in Austin county, north of Houston, produces from the Jackson formation, as do also the 5300-foot wells in the west extension of the old Humble field.

At Clay Creek, in Washington county, the farthest inland of Gulf Coastal domes, the Sun Oil Co.'s good production in a solidly owned field comes from the Cook Mountain formation. Although the Cook Mountain beds produce in structural areas of the Laredo district, the Clay Creek dome is the first to yield up oil from such bedding in salt plug territory.

The point was made by Dr. Barton and confirmed in papers of others that beds exist throughout the Coastal area of Texas and Louisiana from which possibilities of oil exist at all drillable depths for the next generation.

Sidney Powers, consulting geologist on the executive staff of the Amerada Petroleum Corp., Tulsa, was elected new president of the American Association of Petroleum Geologists. He succeeds John Y. Snyder, geologist and individual oil operator, Shreveport.

Ralph D. Reed, chief geologist of The Texas Co. of California, Los Angeles, was elected first vice president, succeeding Fred H. Kay, assistant to the president of the Pan American Petroleum & Transport Co., New York City.

Marvin Lee, consulting geologist of Wichita, was elected second vice president in charge of finances, succeeding A. Rodger Denison, Amerada Petroleum Corp., Fort Worth.

Frederic H. Lahee, chief geologist of the Sun Oil Co., Dallas, was re-elected third vice president in charge of editorial work on the Association Bulletin.

THE Society of Economic Paleontologists and Minerologists, which held its annual meeting in conjunction with the A. A. P. G. convention, elected J. A. Cushman of the Cushman Laboratories, Sharon, Mass., as president.

C. C. Church of the Associated Oil Co., San Francisco, was elected vice president; Gayle Scott of Texas Christian University, Fort Worth, secretary-treasurer; and Raymond C. Moore of the University of Kansas, Lawrence, editor of the paleontological periodical.

Marcus A. Hanna of the Gulf Production Co., Houston, retiring president of the paleontologists, becomes a member of the executive board.

Steady and continued growth in the geological association was cited in the report of Mr. Denison, retiring second vice president, which showed that as of March 1, 1930, the organization has 2292 active and associate members. When the association was founded May 19, 1917 it had 94 members.

A comprehensive program of technical papers on the oil fields and structural conditions throughout the United States and the world was presented to the New Orleans meeting.

R. A. Steinmayer, of Tulane University, New Orleans, discussed phases of sedimentation in the Gulf Coastal Plain of Louisiana; Miss Alva C. Ellisor, paleontologist of the Humble Oil & Refining Co., Houston, gave a history of the marine Oligocene formation of Texas and Louisiana; Marcus A. Hanna, Gulf Production Co., Houston, discussed the post-Oligocene subsurface problem.

A PAPER on the Clay Creek field was presented by F. E. Heath, J. A. Waters and J. B. Ferguson of the Sun Oil Co., Dallas. Douglas R. Semmes of San Antonio dealt with Oligocene and Miocene formations in southwestern Alabama.

Ralph E. Grimm of the University of Mississippi, Oxford, discussed, Eocene sedimentation in the eastern part of the Mississippi embayment; W. C. Spooner and R. T. Hazard of Shreveport, dealt with Comanche series beds of Louisiana and Arkansas; R. A. Liddle of the Pure Oil Co., Fort Worth, was on the program for a paper on the Van structure of East Texas.

Other Texas, Louisiana and Arkansas papers, largely of technical character, were presented by Charles Laurence Baker, Rio Bravo Oil Co., Houston; J. S. Rose, Washington, D. C.; E. H. Sellards, University of Texas; W. C. Spooner, Shreveport; Robert H. Cuyler, Austin; H. D. Miser, Washington; L. F. McCollum, S. O. Burford and C. J. Cunningham, San Antonio. A. C. Trowbridge, Iowa City; W. Armstrong Price, Houston; P. C. Murphy and Sidney A. Judson, Houston; A. G. Maddren and John S. Cruse, Jr., Houston; H. K. Shearer and E. B. Hutson, Shreveport; C. L. Rankin, Lake Charles, La.; E. R. Ames, Orange, Texas, also presented papers.

Papers on areas outside the Mississippi embayment included those of A. I. Levorsen, Tulsa; R. J. Riggs and Homer H. Charles, Bartlesville; Charles E. Decker, Norman; T. E. Weirich, Tulsa; R. D. Clifton, Enid; S. H. Knight, Laramie; P. D. Moore, Calgary; Theodore A. Link, Calgary; Walter A. Ver Wiebe, Wichita; Hugh McClellan, Tulsa; J. Harlan Johnson, Golden, Colo.; John Emery Adams, Midland, Texas; A. L. Ackers, Wink, Texas; E. Russell Lloyd, Midland; D. M. Collingwood, Dallas; F. B. Plummer, University of Texas; R. Clare Coffin, Denver and R. K. DeFord, Roswell, N. M.; E. L. Jones, Jr., and Russell C. Conkling, San Antonio; Roy H. Hall and Arthur Price, Wichita; W. T. Nightingale, Rock Springs, Wyo., and a number of others whose papers were read by titles only but will appear later in the association Bulletin.

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Crookedness of California Wells Cut 50 Per Cent in 1929

LOS ANGELES, March 21 "CROOKED holes are unnecessary and should become a thing of novelty on the Pacific Coast if operators would make a systematic effort to determine the trend of each hole during its progress," was the statement made by Alexander Anderson, prominent oil well surveyor, in his paper "Progress in Straight Hole Drilling" given before the Pacific coast section of the American Petroleum Institute, Division of production.

Mr. Anderson, by the aid of charts and tables impressed on the minds of the assembled members the importance of surveying oil wells and demonstrated that as a result of extensive surveys made during 1929 by oil companies operating in California fields the maximum horizontal drift and the loss in vertical depth in the wells had decreased over 50 per cent when compared with figures obtained during 1928.

He stated that crooked hole problems did not confront operators who drilled to around 500 feet in the year 1865 to such a degree as in the present era where 8500 and 9000 foot holes are ceasing to be astonishing feats. The following table shows the average drifts from derrick floor to bottom of hole at various depths during 1928 and 1929. Figures in feet.

Depth	Average Horizontal drift	
	1928	1929
1000	30	19
2000	89	56
3000	119	103
4000	236	141
5000	396	211
6000	589	291
7000	.....	372
8000	.....	602 (4 wells)

This reduction in horizontal drift has brought about the following reduction in hole lost through vertical inclination.

Depth	Average Loss in Depth of Hole	
	1928	1929
2000	6	3
3000	15	7
4000	23	12
5000	54	19
6000	122	30

Maximum loss in depth was reduced during 1929 to 126 feet in 6000 foot holes as compared with maximum loss of 617 feet for similar holes in 1928.

In a cross-section of the subsurface area of the Long Beach field, Mr. Anderson showed how a well having a horizontal drift of 950 feet missed the lower pay sand located at about 5400 feet although drilled to nearly 5900 feet. He also read several statements from a geologist who claimed that every well completed by his company had been surveyed and that it was as inadvisable not to survey a modern oil well as it was not to core.

Two other papers that created considerable interest at the first day's meeting discussed in detail drilling and operating conditions in the Kettleman Hills field.

Stanley C. Herold, appointed by the Secretary of the Interior to act as umpire on the question of prorating among interested companies the sale value of a percentage of the oil produced in this area under provisions of the Kettleman Hills Conservation agreement, presented a paper on "Sub-Surface Conditions in Kettleman Hills."

During the second day of the two-day session, F. F. Hill Union Oil Co., read an interesting paper on "Better Drilling." He used to illustrate his talk, slides and actual specimens of cement blocks drilled in an experimental rig of the Union Oil Co., to determine the course of a bit through rocks of various degrees of hardness and the effect on drilling operations of carrying heavy and light loads on the bit.

In the following discussion it was stated that although most poor holes are drilled by fish tail bits, a fish tail bit could be used to drill a straight hole provided that the bit did not carry too much weight, that the cutting edges be kept sharp and that short drill collars be used. H. H. Jones Continental Oil Co. claimed that most bits on the derrick floors are so thick on the edges that they could not be kept sharp. He cited instances where a bit in his experience, cut several feet in a comparatively short time when first placed in the hole but failed to make a similar distance in as many hours when the bit had become dull.

John Sweeney, Continental Oil Co. presented a paper of wharf construction that was particularly apropos considering the extensive tideland drilling under way along the Pacific Coast during the past few months. Mr. Sweeney set the safe life of steel piling as 10 years and stated although considerable experimental work has been done during the past year on suitable non-corrosive paints nothing has as yet been found to be entirely satisfactory.

Mr. Sweeney gave several descriptions of the various types of wharf construction employed by oil companies in drilling tideland wells in Ventura and Santa Barbara Counties together with a comparison of present day and early pioneer wharves.

A highly technical paper read by W. S. Corey on "Counterbalancing of Pumping Wells" and was said to be the most thorough discussion of this subject ever presented.

A. H. Bell, superintendent of production for Continental Oil Co., in California was elected chairman of the section.

So as to facilitate the institute's activities in California oil fields three vice-chairmen were elected as follows: V. H. Wilhelm, petroleum engineer for The Texas Co., vice-chairman for Los Angeles Basin fields, A. H. Cranson production division, Honolulu Consolidated Oil Co., for The Coastal fields; and A. L. Tietze, field superintendent for Standard Oil Co.'s operations at Bakersfield, as vice-chairman of the San Joaquin Valley fields.

E. W. Masters, Shell Oil Co., was elected Secretary; for the coming year and Lester Keim, Oil Well Supply Co. was elected Treasurer.

Mr. Bell, who has always taken an active part in advancing the art of oil well drilling on the Pacific Coast succeeds A. C. "Cy" Rubel, of the Union Oil Co., who has served as chairman of the local division for the past two years.

In response to a suggestion made by W. R. Boyd, jr., executive vice-president of the American Petroleum Institute, the California division elected the following men to serve on an advisory committee to help co-ordinate the various divisions of the institute: J. H. Jenkins, Associated Oil Co.; Fred Fortine, Barnsdall Oil Co.; W. L. McLaine, General Petroleum Corp.; J. A. Bermingham, The Texas Co.; W. E. Dunlap, Richfield, Oil Co.; R. E. Collom, Continental Oil Co.; M. E. Lombardi, Standard Oil Co. J. U. Stair, Shell Oil Co.; A. T. Jergins, Jergins Synd.; H. R. McMillan, McMillan Petroleum Corp.; F. F. Hill, Union Oil Co.; R. R. Templeton, Pacific Western Oil Co.; S. B. Mosher, Signal Oil & Gas Co.; Wm. Keck, Superior Oil Co.; and H. F. Owens, Ethel D. Corp. Mr. Lombardi was elected as chairman of the committee.

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IN THE hope that somebody will read this and be governed by it, the following advice is given: Do not come to the Mid-Continent to work in the oil industry unless a job has already been arranged for.

The outlook right now is that fewer men will be required this year than last and there are plenty available for any emergency work. This country has its unemployment situation the same as any other part has. All the oil companies that maintain employment departments have long waiting lists of applicants. Many of these are known and will be given preference over newcomers.

* * *

This and that: Tom Slick, who has advanced many ideas on oil development and methods of proration, told a meeting that he noted some of his plans are being carried out in the name of other people. He said he had always heard that Bacon wrote Shakespeare's plays and now he believes it. . . . E. B. Reeser, president of the American Petroleum Institute, is home from New York, California, etc. and will soon leave for New York, California, etc. He spends at least half his time on the steam cars. . . . The annual meeting of the Gypsy Oil Co. was held last week. It was reported that all proxies were in hand and that the stockholders said they were satisfied with the management. . . . Tulsa had its annual dose of culture last week when the Chicago opera troupe came to town. Laundries had a heavy business in dress shirts and collars. . . . Rumor persists that the Phillips Petroleum Co. and the Independent Oil & Gas Co. are betrothed. There is doubt as to which is to be the groom. . . . Also, we hear that the Prairie and Sinclair forces, after spending some weeks examining each other's statistics, are about ready to talk business. . . .

* * *

Geologists of Oklahoma are being organized to help along the candidacy of fellow geologist Frank Buttram, of Oklahoma City, who is out for the democratic nomination for governor. James H. Gardner, head of the Gardner Petroleum Co. is president of the Buttram-for-Governor Engineers Club and Luther H. White, chief geologist of the J. A. Hull Oil Co., is secretary. Mr. Buttram lives in Oklahoma City.

* * *

For the first time in so many years that few can recall when, Tulsa will not be represented this spring when the professional baseball leagues open the season. The old ball park is being torn down to make way for business houses and the club has been moved to Topeka. Commercial baseball failed to pay its way in Tulsa the past two or three years, although the team was a consistent winner.

Various reasons are assigned for the non-support, the most valid of which appear to be that Tulsans prefer golf. There are four country clubs and four public courses and all do a big business when the weather is good, which is most of the time.

Since the Western League baseball team has moved away, there has been a good response to the call for organizing amateur clubs and many of the business and industrial firms of Tulsa will be represented in several local, non-paid leagues. All of which appears to prove that the male citizen of these parts likes to do something for himself in athletics rather than sit in a grandstand and watch the hired players go through their act.

* * *

Borger, Tex., was four years old March 8 and befitting ceremonies were held in that principal town of the Hutchinson county fields. Some 25,000 persons, gathered from all over the Panhandle, participated.

* * *

The aviation committee of the Oklahoma chamber of commerce gave a dinner March 15, in Tulsa, honoring Lieut. Apollo Soucek, U. S. N., who was awarded the annual Spartan Aircraft Corp. medal given for the outstanding achievement by an Oklahoma aviator during the previous year. Lieut. Soucek established the altitude record for seaplanes in June last year. His mark of 38,594 feet still stands. He also holds the American record for land planes. At the time he made it it was the world's record, but has since been surpassed by foreign flyers. His original home was Medford, Okla., a little town in the northern part of the state and the mayor of Medford, Ed Jenkins, was a guest at the dinner.

* * *

Wewoka, Okla., put on a birthday party on March 17. Seven years ago that day R. H. Smith opened the south Wewoka pool, which led to development that in time brought about the Seminole pool discovery.

* * *

R. A. Streeter, of the producing and contracting firm Stearns & Streeter, Wichita, has returned from a vacation spent in southern Texas.

Raymond M. Carr

Production engineer for the Sinclair Oil & Gas Co., Tulsa, is soon to complete his fifth year of service with that company. Born at Chesterhill, O., in the famous Marietta district, Mr. Carr had the oil atmosphere from infancy. His father was drilling contractor who followed development in Texas, Kansas and Oklahoma, retiring several years ago. Mr. Carr attended school at the University of Colorado and the Colorado School of Mines. He was with the Bureau of Mines, Bartlesville station, more than three years, coming to the Sinclair ice. He has specialized on gas lift company direct from government serv- and repressuring

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Routine Completions in Flush Pools Are Chief Events in Mid-Continent

By William F. Lowe
N. P. N. STAFF WRITER

TULSA, March 22

THE production events of the past week in the Mid-Continent have not been stirring. There was neither thrill nor human interest in the reports, unless perhaps, the proration discussion in the Texas Panhandle falls within the latter category. It seems that some of the points being considered there are about to assume a personal slant and some thoughts are being spoken out loud. Such things usually lead to really satisfactory settlements so the above comment is not derogatory. Rather is it a form of cheer.

In Oklahoma, the Konawa pool of Seminole county had the spot for the week as far as activity was concerned for, in proportion to its size, it has more new operations than any other area. It did not do so well however, for its west side proved to be something of a bust. To date seven dry holes mark its western frontier where, it seems, one or two would have answered the purpose. Its extensions to the south continued to meet expectations. Two good wells were brought in there and several new ones are getting under way.

Oklahoma City had the usual run of luck in the way of completions. Nine new producers was the score, which only goes to prove that the prediction in these columns some time ago that the average would be five a week from then on, was too conservative.

The new wells raised the daily potential of the pool some 83,000 barrels, which puts the total potential for the whole area, in the neighborhood of 1,000,000 barrels. However, that figure must be looked on as a potential only. It does not mean that the pool would make that much oil for longer than 24 hours, if that long. Open flow for a period of seven days would probably see the figure reduced by at least one half.

Down in the southwestern part of the state, the old Cement pool of Caddo county, has been getting a land play that suggests old times. It is all based on the hope of deep production on the Cement anticline. Of course the new 3300-foot sand found there recently is interesting and wells are being deepened to it, but it seems that really deep tests are to be the order of the day.

As has been the case for some time past, the Voshell pool is the most active area in Kansas. A dry hole on its east edge marked the limits of production in that direction but completions, some of which had initials over 1000 barrels. Wildcat oil shows the heart of the pool had five good in Rice and Ellsworth counties were other features in the state.

To come back to the Panhandle, it seems that there was only point that all the operators are willing to agree on in the proration difficulties. All the witnesses at the hearing before the State Railroad Commission, which was being petitioned to take charge of proration, agreed that there was no surface waste of oil. Joining with the Independents, the Gulf and the Magnolia insisted, that because of this fact, the state has no jurisdiction. They don't seem to care much for proration ideas but the Humble intimates that open pit storage is the next step in that territory if something isn't done soon.

Meanwhile 18 new locations were spread from Wheeler county to Moore county and production jumped up to 93,610 barrels per day, an increase of over 1000 barrels for the previous week and nearly 7000 above the daily average on the first of the month. Gray county is accounting for the largest share of the increase as the development of the Worley area north of the Finley pool progresses. It begins to look as if the Spring drive was on regardless of the pending proration measures.

THE largest completion near the older part of the Konawa pool in Seminole county, Okla., is that of the Champlin-Shell No. 1, Sachemeche, NW SW SW, 9-6-6W, which is doing 50 barrels an hour from the Cromwell sand. The latter was topped at 2863. On the west side of this part of the pool, the Twin State Oil Co., No. 1 Harjo, C NE NE NW, 16-8-6W, deep test of the area, is a dry hole at a total depth of 4023. This boosts the total of dry ones in the same section to seven and that aught to be enough to convince anyone that the price of acreage there should be lowered.

The recent mile and one-half extension to the south which resulted with the completion of the Hilton Phillips well, 20-6-6, has started 14 other wells in the immediate vicinity. Between this active spot and the older portion of the pool there are several more tests being started. With reasonable luck the whole area should be well connected.

The Oklahoma City pool never seems to miss. No extensions of importance were made during the week but the batting average for completions remains about the same. The most spectacular well was the Indian Territory Illuminating Oil Co., No. 2 Farley, C SW NW NW 19-11-2W, which flowed 19,833 barrels in 12 hours. It is a lime well, having found this horizon from 6009 to 6465, and its potential production must be judged accordingly.

Two other lime wells, both above 5000 barrels initially, came in with something more than a trace of water. Production for the pool is being kept below 60,000 barrels on the average though there is considerable fluctuation in the daily figure. About 24 wells are allowed to produce at a time.

IN THE crooked hole country at Voshell, in McPherson county, Kansas, the most important development of the past seven days, was the dry hole found on the east edge of the pool. This was the Gypsy Oil Co., No. 1 Stucky SW SE NW, 10-21-3W. Only a small oil show was found in the Wilcox at 3530 and at 3534, with 2000 feet of water in the hole further drilling was abandoned.

Five good producers were brought in the Voshell area though only two of these were in the 1000-barrel class. Though almost a mile apart, their completion figures are very nearly identical. On the north, the No. 2 Krehbiel, of the Barnsdall Oil Co., SW SE 4-21-3W, found the Wilcox from 3367 to 3370 and was completed for 1000 barrels. The Shell Petroleum Corp., No. 4 Stucky NE SW SE 9-21-3W, produced 1025 barrels on its first gauge and had the Wilcox from 3364 to 3371. These holes must be straight and the structure flat or there would be considerably less similarity in their logs.

There will be no more drilling in or near the Schurr pool of Rice county, Kansas, if the new agreement of operators becomes effective. There

are only four wells there now but since it is one of the two Siliceous lime areas of western Kansas, it could grow rapidly if allowed to do so. The oil companies now interested have agreed to keep the daily average production per well to 50 barrels. In addition, all drilling within a mile of these wells will be suspended during the next two months.

Ellsworth county has a very interesting wildcat in the Tatlock et al, No. 1 Hertwig C SW SE, 25-17-9W. This well had a small show in the conglomerate at the base of the Pennsylvanian before passing into the Silicious lime at 3250. In the latter formation, from 3283 to 3285 water was encountered and filled the hole. The well is located between the Schurr pool and the Sellens lime area of Russell county and it was expected that it might prove the intervening territory. Its failure to find production in the Arbuckle is a distinct disappointment.

Midland to Entertain Production Group

HOUSTON, March 21.—The spring meeting of the southwestern district, American Petroleum Institute division of production, will be held April 10 in the Scharbauer hotel at Midland, West Texas, Walter H. Meier of Dallas, chairman, announced.

In his announcement letter, Mr. Meier refers to the Midland meeting as the first in the southwestern district since the change from what was previously known as the Texas-Louisiana-Arkansas district of the A.P.I. Division of Development and Production Engineering.

Papers in preparation for the Midland meeting include a discussion of "Methods of Proration in Texas Fields," to be given by L. E. Barrows, Fort Worth division manager of The Texas Co.; "Air and Gas Injection Problems," to be discussed by E. V. Foran, petroleum engineer, Fain-McGaha Oil Co., Wichita Falls; and a report of a special committee on a standard electric power rate structure of which E. G. Allen, central division general superintendent of the Shell Petroleum Corp., Dallas, is chairman.

J. R. McWilliams, chief engineer of the Skelly Oil Co., Tulsa, and recently head of the A.P.I. production division work in the Mid-Continent territory is to discuss the organization and purpose of A.P.I. field chapters.

Committee reports to come up for discussion will include those of Melbert Schwarz, Rio Bravo Oil Co., Houston, chairman on drilling practice, and W. W. Scott, Humble Oil & Refining Co., Houston, chairman of the production practice committee.

Field trips to the Yates, Big Lake and Winkler fields of West Texas are being arranged by oil companies and individuals in cooperation with the Midland Chamber of Commerce. C. W. Alcorn of the Shell Petroleum Corp., Midland, is chairman of the arrangements committee.

Small Osage Lease Sale Set for April 5

TULSA, March 22.—Oil leases on 32 tracts of Osage Indian land, covering a total of 5018.12 acres, are to be offered at auction at 10 A. M. April 5, at Pawhuska. The leases offered differ from those usually covering Osage land in that they do not require the drilling of a well the first year, but may be kept in effect five years by the payment of the standard rental of $1.00 per-acre per-year, the same as the ordinary commercial leases. This is a longer waiver of development than is usually given.

Practically all of the leases offered for oil development lie to the east of Range 7E, long regarded as the dividing line between the tracts which might be expected to bring high prices, and those which usually went at a lower figure. It was the tracts on the west side that made history during the bidding at some of the former sales.

The usual blue print maps showing the location of the leases offered have not been prepared, according to the announcement of the sale made by J. George Wright, Superintendent of the Osage Indian Agency. Logs of wells which have been drilled in the neighborhood of the tracts are obtainable a 25 cents per copy, through Mr. Wright.

A list of the tracts offered for oil lease follows. Each tract except No. 1 is a full quarter sections.

Tract	Description	Tract	Description
1 Fr.	NW 10-24-12	17	SW 29-21-10
2	NW 10-24-12	18	NW 32-21-10
3	NW 24-20-11	19	NE 18-22-10
4	SW 24-20-11	20	SE 24-23-10
5	SE 11-21-11	21	NE 31-23-10
6	NW 29-21-11	22	NE 31-27-10
7	SE 8-22-11	23	NW 31-27-10
8	NE 27-22-11	24	NW 6-21- 9
9	SW 34-22-11	25	SW 16-21- 9
10	SE 35-25-11	26	SE 17-21- 9
11	SW 36-25-11	27	SE 29-22- 9
12	SE 21-27-11	28	SW 29-22- 9
13	NW 24-27-11	29	NE 29-23- 9
14	SW 24-27-11	30	SE 3-25- 8
15	NE 28-27-11	31	NW 24-23- 7
16	NW 34-20-10	32	NE 18-23- 6

Texas Pipeline Bill To Become Law

(Staff Special)

HOUSTON, March 20.—Powers of the Railroad Commission of Texas in the regulation of pipelines will be enlarged soon after June 15, when a new statute passed by the fifth special session of the legislature becomes effective. The law designates pipeline owners and operators as public utilities, extending their common carrier and common purchaser status.

Governor Dan M. Moody filed the bill without signature, March 18, thereby permitting it to become a law within 90 days. In filing it, the governor made the annotation that "the bill may not work any good but I have not been shown where it will work a harm."

The governor also said he could not foretell the results of the bill going into force.

"It was intended," he continued, "to prevent a monopoly and to improve present distressing conditions. Some independent oil operators have opposed it, but the overwhelming majority of oil men not connected with any major company are strong in their support of the measure.

"I feel that in a large measure monopolies and trusts are responsible for the losses our state is now sustaining in what is being produced from its oil resources. I am opposed to these tendencies."

The recently organized Independent Petroleum Association of Texas, headed by Tom E. Cranfill of Dallas, advocated passage of the measure, which was carried by large majorities in both houses of the legislature.

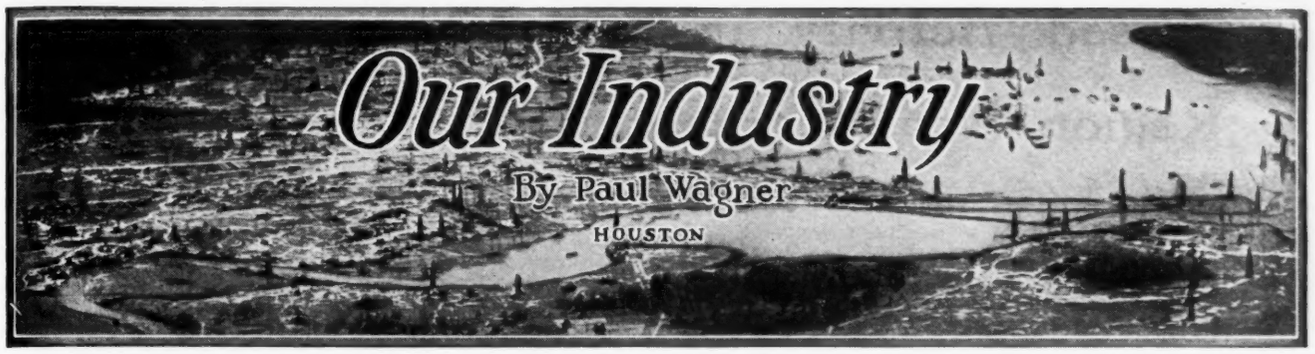
Gas Line, Texas to Chicago, Not Yet Decided Upon

NEW YORK, March 21.—Preliminary surveys are being made for a natural gas pipe line from the Texas Panhandle to Chicago, but so far nothing definite has been decided on and will not be until after a thorough study as to whether such a line would be an economic enterprise. This was said this week at Henry L. Doherty & Co., New York.

Reports had been published that Cities Service Co. and Standard Oil Co. of New Jersey were contemplating such a line. At the Standard offices it was said no announcement was to be made at present and that published reports were conjectures.

Similar reports were made a year or so ago but nothing developed at the time. At the Doherty company offices it was said that, whenever it became known in stock market circles that a survey was being made for anything, many rumors of big developments always followed.

Although there is little or no doubt about a market at Chicago for the gas there is a great question about the life of the supply for a period long enough to pay for the line plus the necessary profit on an investment which has been estimated as high as $105,000,000.



A POLICY that combines recognition of special service and promotes efficiency in all branches of The Texas Corp.'s nationwide organization was inaugurated by President R. C. Holmes more than a year ago. Under it, special awards of paid-up stock, cash or royalties may be made in the discretion of an executive committee in the company's New York offices. No general announcement has been made of such awards, but it is the plan itself that takes on public interest as showing how a major corporation may accomplish a desired result and at the same time give special recognition of unusual service.

Under the plan, additional compensation, over and above the employe's salary, will be awarded after a careful investigation of each instance in which something of merit has been presented in the way of special service or unusual performance, or contribution, whether mechanical, clerical or otherwise.

Each idea, it is explained, should be tabulated in its final analysis on the basis of a money saving to the company, and such figures should be based on actual results, not estimates, except in such cases where no tangible set-up can be made. Devices such as may be of patentable nature should be mentioned as such. The employee, however, need not be concerned with drawings or patent application as such will be worked out for him where necessary

Employes are urged to bring their ideas before their immediate superiors' who in turn will communicate with proper authorities in the district, such as the division superintendent, chief clerk or chief geologist, as the case may be; and the idea then will be [illegible] reviewed by a district or division committee before being submitted to final judgment at New York.

* * *

Fred H. Kay, assistant to the president of the Pan American Petroleum & Transport Co., stock-controlled by Standard Oil Co. of Indiana, is expected back at New York headquarters in April after a two-months trip to the Iraq region. Mr. Kay's absence abroad kept him from attending the New Orleans meeting of the American Association of Petroleum Geologists, of which organization he was the retiring first vice president.

* * *

M. R. Gayle, who formerly represented the Lee C. Moore Co., Inc., in Shreveport territory, is now manager of Mid-Continent sales for the Broderick & Bascom Rope Co., making his headquarters at Tulsa. Mr. Gayle was succeeded at Shreveport by J. E. Harrell, formerly his assistant, who had worked out of El Dorado, Ark., prior to his promotion.

* * *

Adalberto Delgado has taken over the management in the Tampico district of the Control de Administracion del Petroleo Nacional, otherwise the federal petroleum control for that territory. He succeeded Senor Segovia, transferred to Mexico City.

* * *

L. H. Henderson has joined the Los Angeles staff of the International Geophysics, Inc., a technical organization engaged in petroleum and mining industry exploration.

* * *

D. A. Little, who was recently elected vice president and assistant general manager of the Magnolia Petroleum Co., at Dallas headquarters, had previously held the title of assistant to Ben H. Stephens, executive vice president and general manager. Mr. Little was made a director of the company early in 1929. He had been attached to the executive department of the Magnolia since 1928, when transferred from the post of assistant treasurer. His first entry into the Magnolia organization was in 1914 in the accounting department. He was named assistant treasurer in 1923.

Fred H. Kay

* * *

Harry P. Carroll is now operating manager of the Houston Gas & Fuel Co., a United Gas Co. subsidiary in South Texas territory. He was formerly district manager of the Dixie Gas & Fuel Co., an affiliated corporation, at Beaumont, where he was succeeded by W. B. Curry of Nacogdoches.

* * *

C. C. Hummer, long connected with the Pure Oil Co. in southwestern fields, is now superintendent in charge of properties in the Howard-Glasscock county area of West Texas, making headquarters at Sweetwater.

* * *

R. R. Emery of the Halliburton Oil Well Cementing Co., Duncan, Okla., has been transferred from the Houston district to Oklahoma City.

* * *

Fred Williams, formerly chief draftsman in the Fort Worth producing division offices of the Pure Oil Co., has been transferred to East Texas, where he will do field work in the Van area.

* * *

William H. Davidson, formerly of the Dallas headquarters accounting department of the Magnolia Petroleum Co., has been transferred to Electra, where he is now office assistant to W. C. Morgan, machine shop superintendent.

* * *

A Safety committee has been organized by the Pure Oil Co. in the cooperatively developed Van field of Van Zandt country, East Texas, composed of the following lease formen: A. E. Staton, B. E. Rucker, K. C. Murph, A. A. Goodman, Otto Salyer and James McNally, together with Kent Kirkman of the Van office. Mr. Goodman is committee chairman and Mr. Kirkman is secretary.

Increased Activity in Coastal Region Near Carpenteria

By Jack N. Westsmith
N. P. N. STAFF WRITER

LOS ANGELES, March 22

DEVELOPMENT proceeding in California fields took a place of secondary importance during the past week as operators awaited the effect of enforcement of the gas conservation law at Santa Fe Springs.

Small independent and some large independent companies will have to bear the brunt of the new ruling as a majority of the major interests have a sufficient number of wells to enable them to shut down wells in the center of their holdings, while flowing wells offsetting the independents nearly wide open.

Although there is a reduced incentive for any company to carry on extensive exploitation work in the face of this law, several localities throughout the state are being given tests in an effort to strike new oil reserves.

As part of the increased activity in the Coastal region northwest of Ventura Avenue, Standard Oil Co. is reported to have leased 450 acres adjoining its Shepherd lease in the Casitas Pass near Carpenteria. Standard has a well standing cemented at 1289 feet on its Shepherd holdings. If a successful water shut-off is obtained the project will be pushed ahead to determine whether the three feet of oil sand cored at the bottom of the hole has additional thickness.

Acquisition of the new acreage has given rise to a suggestion that the company is confident of securing commercial production in its present test. The structure thought to have been penetrated by Standard's well runs with its axis along the coastal plains north of the so-called Carpenteria field. Shell Oil Co. holds acreage along the western end of the uplift and is now drilling a test well in Toro Canyon, approximately five miles west of Standard's Shepherd project.

This activity at Carpenteria is entirely separate from the wildcatting that has been under way for several years on the ocean edge. Continental Oil Co. drilled two tests on this beach land but failed to make oil wells out of them although large quantities of gas were found. This company is now drilling ahead on its Tideland Permit 124-1, a deep test of the ocean bottom in this vicinity.

Tideland and mainland drilling by General Petroleum Corp. on its holdings in the Goleta district, south of the Elwood field, bore fruit during the past week when the company's More No. 2 came in for an estimated production of 40 million cubic feet of fairly wet gas and some oil that is reported to be of a higher gravity than that found in the high gravity field of Elwood.

If the well cleans up and commercial production is obtained in this area considerable acreage will have been proved up. General Petroleum is drilling a deep test of tideland holdings adjoining the More lease in an effort to strike the main pay sand thought to underly this district.

Additional proof of the theory that it doesn't pay to abandon a hole while there is still an edge on the bit, was obtained during the past week when California-Ventura Oil Co. was reported to have picked up a likely looking oil sand at 6445 feet in its Carlin Smith No. 1 in the Redondo Villa tract at Redondo Beach. This well is approximately seven miles south of Ohio Oil Co.'s discovery well in the Playa Del Rey district and was indefinitely suspended after having been drilled to nearly 5100 feet by Western Oil & Refining Co.

Last minute efforts of operators at Santa Fe Springs to secure the maximum amount of oil possible before enforcement of the gas law reduced their daily production, resulted in the field's showing a decided increase at the close of the week. Production for March 20 was 144,520 barrels, but following the granting of the restraining order the daily yield jumped to 150,785 barrels. It is expected that as a direct result of the gas conservation law enforcement, production in the field will be reduced to approximately 110,000 barrels.

Operators at Long Beach are not expected to look with continued favor on any movement to curtail their production in view of the fact that the hearing on injunction proceedings for this field is scheduled for April 7, and it is likely a restraining order will be granted soon after. Conservation leaders have been unable to reduce this field's average daily yield to below 100,000 barrels although an allowable output of 92,340 barrels has been set by the fact finding committee.

Seven new completions added during the week further complicated matters although their combined production did not total more than 2400 barrels per day. Shell Oil Co. secured the largest well in its Stakemiller No. 7, which came in for approximately 800 barrels.

Standard Oil Co. is reaming out its Mascot No. 1 in the San Joaquin Valley after having drilled to a depth of 9359 feet. Although the formation continues to consist of fairly hard sand and shale with no trace of oil reported the well will be drilled to at least 10,000 feet. The project was started Jan. 4, 1929 on property where shallow wells have been producing for several years. At present there is approximately 3000 feet of open hole below a string of 9-inch casing set at 6350 feet. The first water string was 996 feet of 13⅜-inch pipe and an 18⅝-inch conductor string was landed at 565 feet.

In an initial test of its acreage located near La Habra between the oil fields of Whittier and Richfield, Union Oil Co. cored about 30 feet of brown shale and oil sand. The well will be deepened to determine the depth of the sand and if of sufficient thickness it is considered likely that a flow test will be given the area, known as the Sansanema ranch, where shallow production was obtained nearly 30 years ago. A production test would only be undertaken to determine the productiveness of an oil field that has been considered proven.

35,000 Attend California Oil Exposition

LOS ANGELES, March 22.—The first annual Pacific Coast Oil Exposition held at the Shrine Auditorium in Los Angeles week of March 16-23 has been pronounced a success from every standpoint. It is estimated that over 35,000 persons visited the show during the week.

Exhibitors are practically unanimous in expressing their satisfaction with results secured in contacts with buyers of their products and in stating that they intend to take even larger space next year.

Visiting cards were passed out among the oil companies with space provided for the name, position and connection of every person so as to check up on the type of visitor. Exhibitors were furnished with badges stating the company represented and their name. This enabled easy contact between buyer and exhibitor.

Many exhibitors remarked on the number of foreign, Mid-Continent and Texas oil men present at the exposition.

Interesting meetings were held by the A.S.M.E., A.I.M.E., Southern California Meter Association, and the production division of the A.P.I., Pacific Coast section.

Plans are already under way to erect a permanent building near the industrial section of Los Angeles to house the exposition next year and a large number of applications have been made by exhibitors for space.

Principles of Oil Field Development

Outline of Research Plan; Conclusions

By Lester C. Uren
Professor of Petroleum Engineering, University of California

Article IV—Part 2

SOME aspects of well spacing lend themselves well to laboratory study, and while but little work of this character has been done as yet, it is possible that laboratory research may eventually contribute in an important way to the ultimate solution of the well-spacing problem.

The influence of viscosity of the oil, of sand porosity and texture on permeability of the reservoir rock; the pressure loss of oil in flowing through sands at different velocities and under the influence of varying pressures, may be studied to better advantage under laboratory conditions than in the field.

The relative efficiencies of different methods of recovery and different systems of pressure control may also be best studied in laboratory apparatus. In the field we must take the controlling physical conditions as we find them; we cannot even measure them accurately, and they are generally largely beyond our control.

In the laboratory, all physical variables may be accurately controlled and varied at will. We may exhaust a given field only once, by a single method or sequence of methods, and we may never know but that another method or sequence of methods would have produced a superior result.

In the laboratory, we may exhaust and recharge an apparatus repeatedly, thus keeping all conditions constant while the method of recovery is varied in successive tests. By such means we may determine comparatively the relative efficiencies of different methods of field exploitation and well control.

The writer and his co-workers in the University of California Petroleum Engineering Laboratories, have for some years been conducting recovery experiments in a sand-filled pressure-drainage tank, which has been described and illustrated in an earlier article of this series.[5] The pore space within the sand in this apparatus is charged with gas-saturated crude petroleum under an initial pressure of about 80 pounds per square inch.

Miniature "wells" penetrating the shell of this apparatus and the oil-saturated sand within, produce by expansion of gas originally in solution in the oil, and simulate in all respects the habits of actual wells in the field. It is possible to exploit this "miniature oil field" with anything from one to as many as fifteen wells, it being possible to arrange the wells in different patterns and with different spacings.

THIS article concludes the current series on principles of oil field development by Prof. Lester C. Uren. Previous articles were published in NATIONAL PETROLEUM NEWS issues of Oct. 2, page 65; Nov. 27, page 59.

Professor Uren has prepared two articles of timely interest on unit exploitation of oil fields. These articles will be published in NATIONAL PETROLEUM NEWS in the near future.

One series of experiments performed with the aid of this apparatus was planned to test the principle set forth in the foregoing section, that closer spacing of wells results in greater acreage yield, but lower recovery per well: a principle that has been generally accepted without reservation by the industry, on the basis of field results. The same sand body was used throughout the experiments and all conditions were maintained constant in successive tests, except that a varying number of wells was used in drainage of the oil. Table VIII presents the results:[6]

Table VIII. Results of Pressure-Drainage Tank Experiments to Determine Influence of Well Spacing on Ultimate Recovery

Number of wells producing	Percentage Recovery
1	25.7
2	29.0
3	26.1
4	25.4
5	25.0
6	24.6

A rather surprising result, contrary to previously accepted principles, is disclosed by the data of Table VIII. Two wells produced a larger percentage of the total oil content of the sand than one, but three wells produced less than two and each successive increase in the number of wells above three resulted in the production of a still smaller ultimate recovery.

If we are to accept the data of this series of experiments and interpret them in terms of field results, we should expect production to increase as the spacing is diminished up to a certain maximum and then diminish as the distance between wells is further decreased. It must be confessed that there is nothing in the field data thus far assembled to suggest a critical point in the spacing-recovery relationship, but we may explain this on the assumption that such a critical point will be reached at a spacing interval less even than that now used in our "town-lot" fields.

A reason for the smaller recovery obtainable by very close spacing of wells is not difficult to find: gas wastage is greater with close spacing and regional field pressures are more rapidly diminished. It has been shown that every well produces more gas than the oil simultaneously produced is capable of retaining in solution at the existing field pressure.

This surplus gas is permitted to escape to the wells, leaving the oil which originally contained it, inert within the reservoir sand. Each well is a gas liability and the more of them we have, the greater the loss of gas energy. Up to a certain point, this loss of energy is offset by an opposing factor: the lesser resistance to movement of oil due to the shorter distance that the oil must travel.

Two opposing factors of this character, the influence of one increasing at a more rapid rate than the other, would justify such a critical point as was found in the above experimental data.

We may say however, that in terms of field development practice, this critical point of maximum spacing efficiency represents a closer spacing than present economic considerations (i.e., the cost of drilling and operat-

[5]See NATIONAL PETROLEUM NEWS, issue of Oct. 2, 1929.

[6]Uren, L. C., "The Gas Factor as a Measure of Oil Production Efficiency," Transactions, A. I. M. & M. E., "Petroleum Development Technology in 1927," p. 153. See also, NATIONAL PETROLEUM NEWS, Oct. 19, 1927.

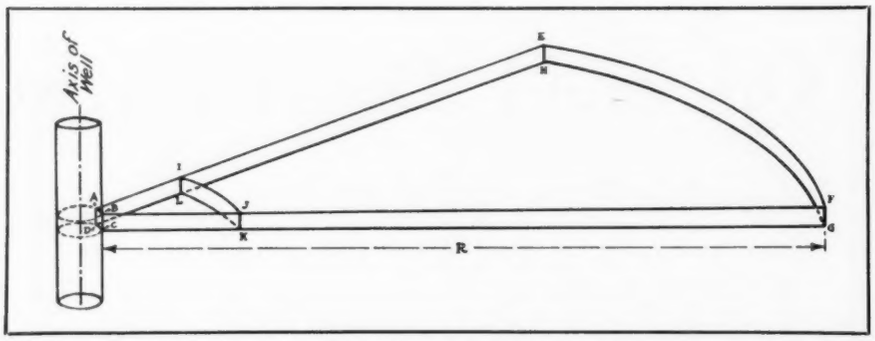


Fig. 3—Sketch illustrating conception of a "drainage element" tributary to a well in the field

ing wells and the present selling price of oil) would justify adopting.

Another explanation may be offered of the apparent anomaly of the data of Table VIII and the theory based thereon. In an earlier article, the writer has shown how, due to the radial characteristics of oil flow toward a well, the greater part of the energy consumption occurs in the immediate vicinity of the well. Due to the greater rapidity of flow of fluids as they approach the well and expansion of gas in this vicinity, due to rapid release of pressure, a much greater pressure loss occurs per linear unit of distance traversed by a given quantity of oil, than at points remote from the well.

In fact, it can be shown that more than half of the total energy expanded in moving oil over a drainage radius of 300 feet through the reservoir sand to a well outlet, is consumed within ten feet of the walls of the well.[7] This being so, it follows that the greater the drainage radius developed by a well, the more efficiently will the oil that is produced be moved: that is, the gas energy consumption per unit volume of oil produced will be less for widely spaced wells that develop their full natural drainage radius, than for wells so closely spaced as to develop interference effects.

We must admit that closer spacing tends to produce a greater quantity of oil due to the shorter average distance that must be traversed by the oil in reaching a well outlet, but if the unit resistance to flow increases as the drainage radius diminishes, it is clear that at a certain point the product of the distance by the unit resistance will reach a minimum value. Closer spacing, providing reduction in average distance traversed by the oil in reaching the well, will then occasion increased energy consumption and consequently smaller ultimate recovery.

Impressed with the importance of securing additional experimental data on the flow characteristics of oil-gas mixtures in this critical zone immediately about the well, the writer and several of his associates[8] are now engaged in a program of research which, it is hoped, will be productive of information of material value in the solution of the well-spacing problem. This research is being conducted with the aid of a novel form of apparatus designed to provide conditions comparable with those existing is a high-pressure oil sand in the vicinity of the wall of a producing well.

Fig. 3 presents a sketch illustrative of the radial character of flow of oil toward a well. The area ABCD represents a square inch on the wall of a well, which lines AE, BF, CG and DH defines a pyramidal body of oil sand, horizontally disposed, which is the tributary material furnishing the oil entering the well through area ABCD. The radius of drainage is R.

It is clear that as the distance from the wall of the well increases, the flow cross-section increases. Considering that the flow cross-section at the wall of the well is only one-twentieth that at cross-section IJKL which is, let us say, ten feet from the axis of the well, and that, due to rapid expansion of gas, the volume of fluid passing ABCD is much greater than that passing IJKL, it is apparent that the fluids entering the well through ABCD are moving many times as fast as at section IJKL.

The sand resistance per linear foot of travel through the sand is much greater near the wall of the well because of the more rapid rate of movement and because of rapid formation and growth of gas bubbles and resultant "Jamin effect" in this vicinity.

In the research referred to above, an effort has been made to build a sand body which would have approximately the same proportions as the theoretical drainage element described in the foregoing paragraph, enclosing it in steel of sufficient strength to permit of charging the pore space of the sand with crude petroleum containing dissolved gas under high pressure.

A pipe form of apparatus has been necessarily adopted because of the difficulty of design against high bursting pressure in any other form, that is, the experimental drainage element is conical in form rather than pyramidal, but of such taper as to afford precisely the same flow cross-section at different distances from the small end (i.e., the wall of the well) as the theoretical drainage pyramid.

This conical drainage tube, as constructed and now used in the petroleum laboratories of the University of California, is twenty feet long, one square inch in cross section at the discharge end, and eighty square inches at the large end. It is made up of four extra strong cylindrical pipe sections of appropriate diameter, each five feet long, and coupled together by heavy bolted flanges.

Within these pipe sections a lining of sand and cement has been poured against accurately turned conical moulds of wood, which were removed after setting of the cement, leaving a perfectly smooth conical opening of the desired proportions through the cylindrical sections of pipe. (See sketch, Fig. 4).

The 20-foot conical tube, thus formed, has been filled with tightly rammed sand having a porosity of about 35 per cent. The photograph reproduced in Fig. 5 shows the tube in a vertical position while in process of filling with sand. When in use, it is laid down horizontally. The tube is designed to withstand bursting pressures as great as 1000 pounds per square inch.

Apparatus has also been assembled for saturating crude petroleum with dissolved gas at high pressure. This consists of a small high-pressure gas compressor and a double-compartment absorber through which oil is circulated over baffling material in an atmosphere of gas under high pressure. (See Fig. 6). This apparatus is also designed to operate at pressures up to 1000 pounds per square inch. It is possible to transfer gas-saturated oil from the absorber to the sand-filled conical drainage element, through connecting piping, with very little loss of pressure or release of gas.

The drainage cone thus charged, presents conditions which, it is believed, are quite similar to those ex-

[7]Uren, L. C., "Measuring Natural Forces that Hold Back Flow of Oil in Ground," NATIONAL PETROLEUM NEWS, Jan. 9, 1927, pp. 67-76.

[8]This research is being conducted as a thesis by H. S. Condor, J. E. Gosline and G. W. Mikulasek, senior petroleum engineering students in the University of California.

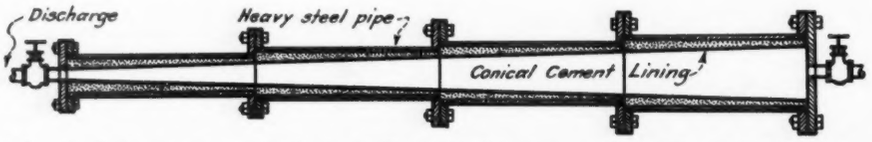


Fig. 4—Laboratory equivalent of the field "drainage element" used in petroleum laboratories, University of California

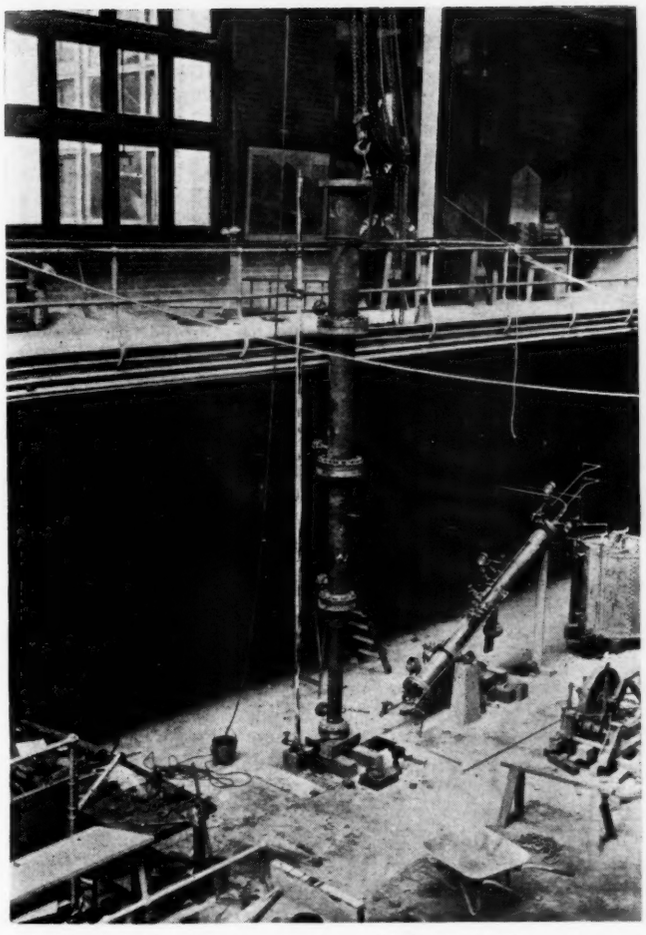


Fig. 5—Conical "drainage element" in vertical position to facilitate filling with sand, petroleum laboratories, University of California

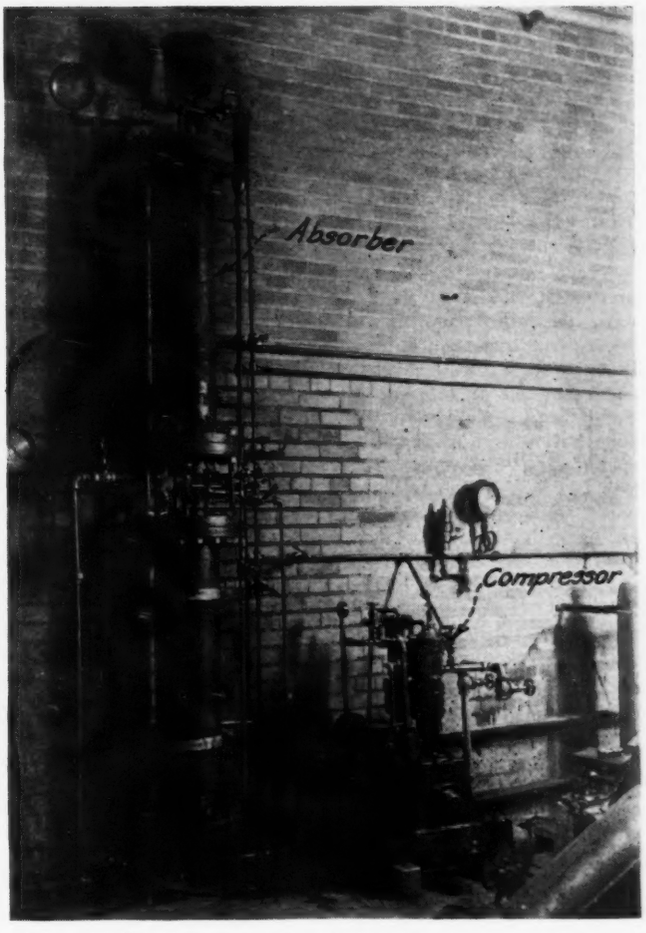


Fig. 6—High pressure absorber and compressor used in saturating oil with dissolved gas, petroleum laboratories, University of California

isting within the oil sand in a high-pressure field.

Facilities are provided for measuring the oil and gas flowing from the apparatus and of applying back-pressures on the outlet to regulate the rate of flow. Pressure-gauge connections at short intervals along the tube permit of determining pressure conditions within the sand body. Provision is also made for obtaining samples of the oil and gas mixture at intervals along the pipe while flow is in progress, and of obtaining samples of the sand itself.

It is proposed to fill the pore space of the sand within the drainage cone with oil containing dissolved gas under high pressure, close the large end and open the small end, permitting gradual release of pressure as to a well outlet. As flow continues, and until pressure equilibrium is attained, the pressure gradient along the tube (i.e., at different distances from the wall of the well) will be recorded. Samples of the fluid at different points along the tube will be occasionally taken to determine gas-oil ratios.

The rate of delivery of oil and gas at the outlet will also be recorded as pressure declines. When pressure equilibrium is attained, the oil sand will be sampled and saturation tests made to determine percentage recovery at different distances from the outlet (i.e., from the wall of the well). These experiments will be repeated with varying back-pressures on the outlet, with different oils and different sizes and porosities of sand.

It is believed that information thus obtained will be of value in supporting some theories relative to well spacing that have been discussed in these articles, and perhaps afford a means of computing the drainage radius of wells under different sand and pressure conditions.

While the tube is only 20 feet long, it will be seen from the above discussion that this is sufficient to include the critical area immediately about the well, and it will probably be possible to extrapolate pressure gradients obtained within this interval and predict the probable pressure gradient to the limit of the drainage radius of a full-sized well in the field. If necessary, the conical drainage apparatus may be extended to greater length to permit of doing this.

Laboratory research may conceivably greatly enrich our reservoir of information on the fundamentals of drainage, leading to a better understanding of the factors that have influence on recovery efficiency and perhaps, eventually, to their accurate formulation along mathematical lines.

Some of our larger and more progressive oil companies have come to appreciate the possibilities of work of this character and are employing skilled research personnel and are providing the best of facilities in thorough-going studies of the factors that influence drainage efficiency.

The results of their research will eventually find expression in more intelligent and systematic development practice and in the use of more effective recovery methods.

Economic Aspects of Well Spacing

Losses due to improper spacing of wells must aggregate truly prodigious amounts from the national standpoint. There are undoubtedly many fields where highly competitive conditions have led to the drilling of more wells than the productive area can properly support.

Many wells in the crowded "town-lot" sections of the Santa Fe Springs and Long Beach fields in California, for example, are so closely spaced that they will never "pay out." A high per-acre yield will result from intensive development, but the cost of drilling and operating so many wells

will be more than the value of the oil produced.

Doubtless in many closely drilled areas, there will be some profit, though it will be less than it might have been with wider spacing. On the other hand, many of the more conservatively developed fields have been drilled with wells that are too widely spaced for maximum profit.

Great areas in our Mid-Continent and western fields have been drilled with an allowance of 10 acres per well, and yet computations indicate that in some cases, profits could have been doubled or tripled by adopting a closer spacing. Present information does not admit of anything more than speculation on what the aggregate loss has been from the national standpoint, but rough computations based on data from a few fields on which tabulated data have been assembled, suggest that it is probably greater than the profit that has been realized on all of the oil thus far produced.

Circumstances over which the individual oil producer has little or no control have contributed in an important way to the financial loss resulting from improper well spacing. The competitive principle in oil-field development is a fundamental difficulty, the influence of which can never be entirely overcome until the industry finds a means of effecting unit exploitation of oil pools.

The small size of many competitive tracts, with resulting obligations to offset neighboring activities and protect boundaries, often compel the producer to adopt a spacing program not in accord with his better judgment.

Lack of adequate financial resources during the early stages of development in many cases prevents exploitation on the most profitable scale. An over-supplied market often compels a less intensive rate of development than economic considerations would otherwise justify. The program of proration and restricted development activity in many California, Texas and Oklahoma fields at the present time, though probably essential from the market standpoint, is dictating a development program that in all probability means diminished ultimate recovery and smaller gross income than could be realized if a reasonable price structure could be maintained with maximum output.

This situation can perhaps, best be remedied by the expedient recently adopted by operators in the Kettleman Hills field of California; that is, by shutting in all wells and deferring development activity in flush fields until market conditions favorable for exploitation on the most profitable scale are realized.

Conclusions

In concluding this group of articles on the principles of well-spacing, we may appropriately set forth such facts as have been clearly established and such probabilities as the data thus far assembled seem to justify.

It will be admitted by all that the economic spacing of wells is exceedingly complex: that many factors enter into the problem, some of which are not readily measurable under field conditions, particularly during the early period of development when the spacing program is being determined. Much depends upon a proper conception of future oil prices, operating conditions and producing methods, factors that can only be estimated in the light of present trends.

Because of the many uncertain factors involved, efforts toward formulation of them have fallen short of their intended mark; and it must be admitted that we have not as yet, a satisfactory means of predetermining the proper spacing of wells in a newly discovered field, even where the influencing factors are measurable or can be accurately forecast.

Within practical limitations, the field evidence thus far gathered seems to indicate that the more closely wells are spaced, the greater will be the recovery per acre, though laboratory data and theory indicate that this relationship would not hold true below a critical spacing, very close spacing probably resulting in a smaller per acre recovery.

This critical point is probably attained at a smaller spacing than that now used in oil-field exploitation. When wells are situated within gas-drainage radius of each other, closer spacing always results in smaller per-well recoveries. Economic spacing will probably continue to be governed by considerations of cost and profit rather than by considerations of maximum per-acre recovery.

PROGRESS thus far made in laboratory research and consideration of what may be accomplished in future by this method, give promise of important contributions toward the ultimate solution of the well-spacing problem. As one of three possible methods of approach—i.e., mathematical analysis, field observation and laboratory research—the latter probably offers greater possibilities of an ultimately successful solution. However, the other two methods will undoubtedly also contribute in an important way toward the final result.

Engineers in a position to contribute to the industry's fund of knowledge on well spacing, should consider it a duty to carry on studies along either of these lines and give publicity to their results and conclusions. This is a matter of community interest. The uninformed oil producer often reduces the efficiency of his competitors as well as his own by following an ill-conceived spacing program which his better informed neighbors are, in self-defense, compelled also to adopt.

Well-spacing as a community problem is a matter in which some central agency, such as the American Petroleum Institute, should become interested in in a substantial way, with the purpose of standardizing spacing practice in all fields on a scientific and economic basis.

Losses due to uneconomic spacing of wells have been enormous. Without doubt, economic well spacing is the most important unsolved technical problem before the present-day oil industry. These losses will continue until a concerted effort is made to systematize well-spacing in new fields along scientific and economic lines rather than with respect to property lines.

THE industry has thus far failed to find a satisfactory remedy for its economic ills arising from inefficiency in well spacing. Along what lines should future efforts to find the remedy be directed? If the writer were called upon to prescribe, he would suggest first, a campaign of education designed to interest the average oil producer in the economic importance of proper well spacing.

Complete understanding of the factors underlying well-spacing will go far toward realization of the goal. Looking toward the development of a practical means of determining the most profitable spacing under a given set of field conditions, it would appear to be possible, by experimental research, to establish a unit of sand permeability, comparison with which, for a given field pressure and thickness of sand, would at once determine the quantity of oil that could be extracted by a specified method of well operation under any spacing interval that might be adopted.

It then only remains to balance cost against revenue to determine the spacing that would be most profitable. It should be possible on this basis, with sufficient experimental and field data as a guide, to estimate from laboratory tests on cores of the oil sand and closed-pressure measurements taken in a single well, before it has been allowed to produce, the proper spacing for wells on acreage immediately surrounding.

As these are drilled, they in turn, furnish similar criteria for spacing of later drilled wells on adjacent territory. The economic spacing is not properly constant, but may conceivably vary widely, even within areas of limited size. Finally, economic well spacing requires elimination of the competitive principle in oil-field development and substitution therefor of a practical form of unit or cooperative exploitation.

ADVERTISING PAGES REMOVED

Shaft Driven Hydraulic Rotary Starts First Hole in Mid-Continent

By William F. Lowe
N. P. N. STAFF WRITER

TULSA, March 20

EQUIPMENT tending toward the almost complete elimination of the human element in the control of rotary tools is making its debut in the Mid-Continent at Oklahoma City. The new outfit is known as the Hydril. Developed in California, its hydraulically operated table, unique draw works and power plant are having their initial test east of the Rockies on the Cromwell-Franklin No. 16 Trosper Park, 13-11-3W.

Engineers of this deepest pool in Oklahoma are showing considerable interest in the unusual features of the Hydril. Its hole making record from starting of the hole on Feb. 20, was 2500 feet in 10 days which is not beyond the usual speed of the chain driven, hand controlled tools. However, according to W. M. Mitchell, the engineer in charge of the operations, it is not in the upper formations that the equipment makes its best showing. The time required to drill the first 3000 feet is usually about that of other methods. Below that point, the manufacturers claim that their invention cuts drilling time considerably.

In this argument lies much of the interest of the Oklahoma City contractors. Their usual practice is to make money where the going is easy and fast in the upper part of the hole and then try to do a little more than break even on the deeper end where the drilling slows up. If the Hydril can more equally distribute the drilling time and give a more consistent per day footage all the way, it will probably have a favorable reception.

The most interesting part of the Hydril is its vertically moving table. Mechanically, this table offers many unusual features. It is mounted on a cross head which is hydraulically operated by two cylinders having a 42-inch stroke and 250 tons lifting power. The latter may be seen in Fig. 1, between the steadying guide posts which flank them on either side.

The hydraulic pressure for the cylinders of this particular installation is furnished by an old 12-6¼-12 mud pump as shown in Fig. 2. A smaller pump can be used, though the size is usually determined by what the operator may already have on hand. But any pump of similar size that can handle water in summer or oil in winter will serve the purpose. Pressure is transmitted to the cylinders through a valve control panel that is shown on the driller's right in Fig. 3. By the manipulation of these valves the table may be raised or lowered as desired and the speed of its movements in either direction may be easily controlled.

The whole rotary is mounted on a large steel base casting which serves as a bottom cylinder head. The latter is set on and anchored to two 20-inch I-beams laid across the cellar. These beams are trussed and set in a concrete foundation. The whole table is steadied by four radial tie rods extended to the four corner piers of the derrick. In each of these rods are heavy springs that make for flexibility while at the same time absorbing shocks and reducing vibration.

The rotating top of the table, shown going at a good speed in Fig. 1, is mounted on roller bearings which operate in heat treated races. These bearings are completely closed in, preventing the entrance of dirt or mud, as are also the Timken bearings of the driving mechanism which connect the table with the drive shaft. All gears, including the table gears, operate in oil supplied under forced feed.

In operation, the table has several striking features of unusual interest. Not only can its downward movement be so regulated as to keep a constant predetermined weight on the bit, but it can also be used for drilling upward through a sticky or cavy formation. Should the tools stick coming out of the hole, the rotary may be started with the table in its lowest position, pressure turned into the cylinders and a lifting force up to 200 tons is available. The process may be repeated in 42-inch lifts until the tools are again free. Any driller who has had experience with "frozen" casing can readily appreciate the value of having such powerful hydraulic jacks as part of the regular rig equipment.

In regulating the weight on the bit, a differential gauge is used.

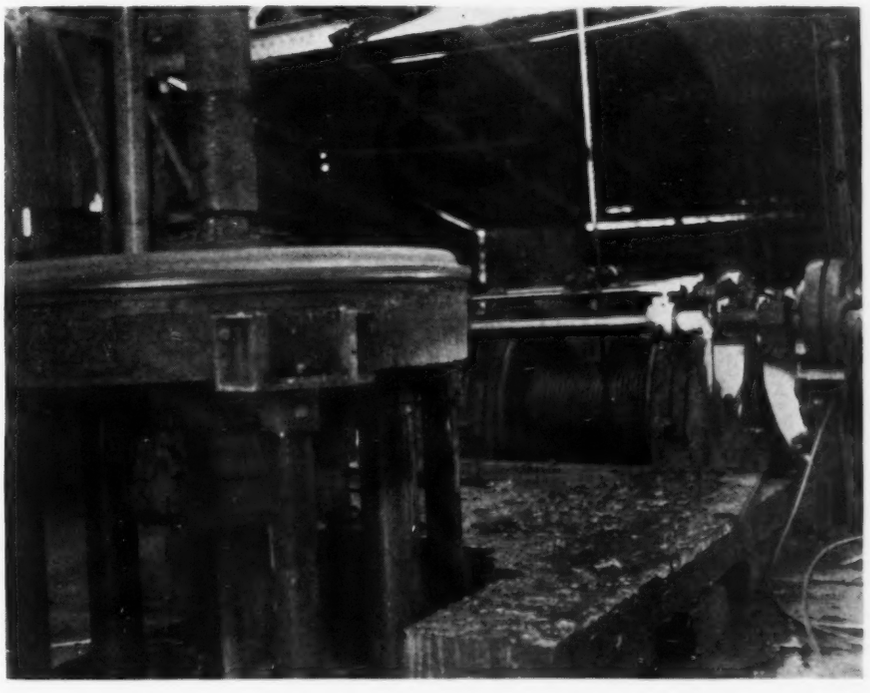


Fig. 1—View across floor showing table in raised position and the two hydraulic cylinders which support it. The draw works in rear

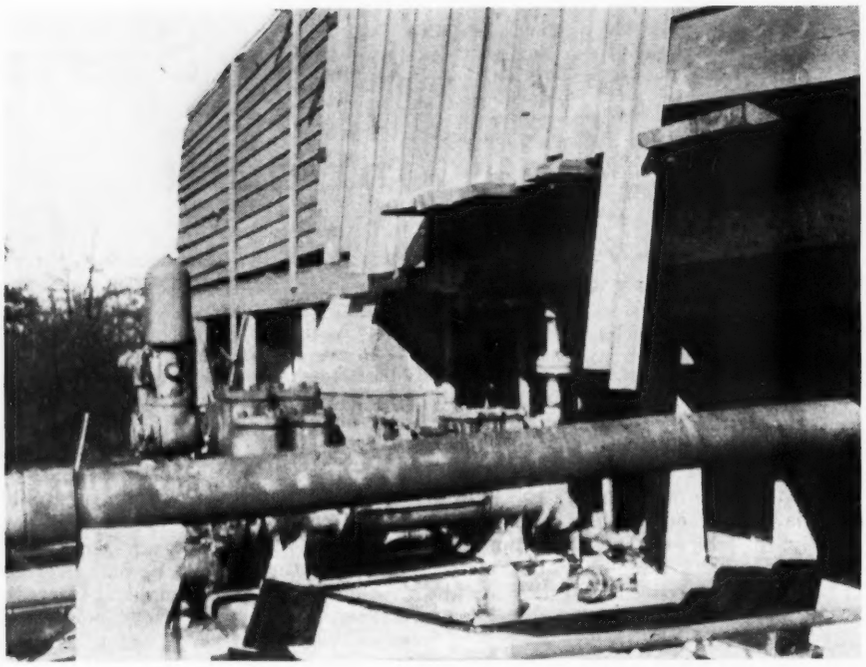


Fig. 2—View outside rig showing the pump used to furnish hydraulic pressure to the table cylinders. Note large steel I beams below the floor

While the tools and drill pipe are still swinging free with all their weight on the table, the driller may read the weight of the entire string on this gauge. As the bit is lowered, the total weight is reduced as a portion of it is transferred to the formation at the bit. The amount thus transferred may also be read directly from the gauge on an inner dial.

This pressure on the bit may be kept constant by an adjustment of the valves in the control panel. The rate of vertical movement of the table, in either direction, ranges from 42 inches in 10 hours to the same distance in half a minute, depending upon the demands of the formation being drilled, or the operation being performed.

After a little practice with this sensitive control, a driller who is fairly familiar with the formations should be able to make comparatively straight hole with a fairly high average speed. The manufacturers claim some very interesting records in fast straight hole drilling in the California.

In the handling of long strings of casing, the hydraulic table takes many of the jars and strains that are ordinarily put on the derrick and equipment as well as on the casing itself. The table is raised slightly before setting the slips and taking the weight of the string. Another joint is added and the weight transferred to the casing hook, following which the table is lowered releasing the slips. It is not necessary to lift the entire string with the draw works, as it is usually done, in order to free the slips.

Referring again to Figs. 1 and 2, it may be seen that the draw works is a very compact unit. It has only one small chain, the housing for which can be seen at the cathead just in front of the driller. The fact that this cathead is waist high and in full view of the driller tends toward ease and efficiency of operation.

The draw works also is mounted on a steel casting and is set in a separate concrete foundation which is probably the cause of the noticeable lack of vibration when this unit is operating. The drive is geared to the prime mover through a three-speed transmission and controlled by a positive jaw clutch. A low speed drive for the drum comes through a planetary gearing. Thus the entire equipment is provided with a two-speed drum and a three-speed transmission, making a total of six speeds available for hoisting.

An interesting feature of the draw works is shown in Fig. 1. It will be noted that the line passes through a guide before being spooled on the drum. This guide slides back and forth above the drum and causes the overlaps to be made at each end with a minimum of stress and friction on the line at the turns. All the gears are completely inclosed and the drum as well as the drum shaft are mounted on Timken bearings.

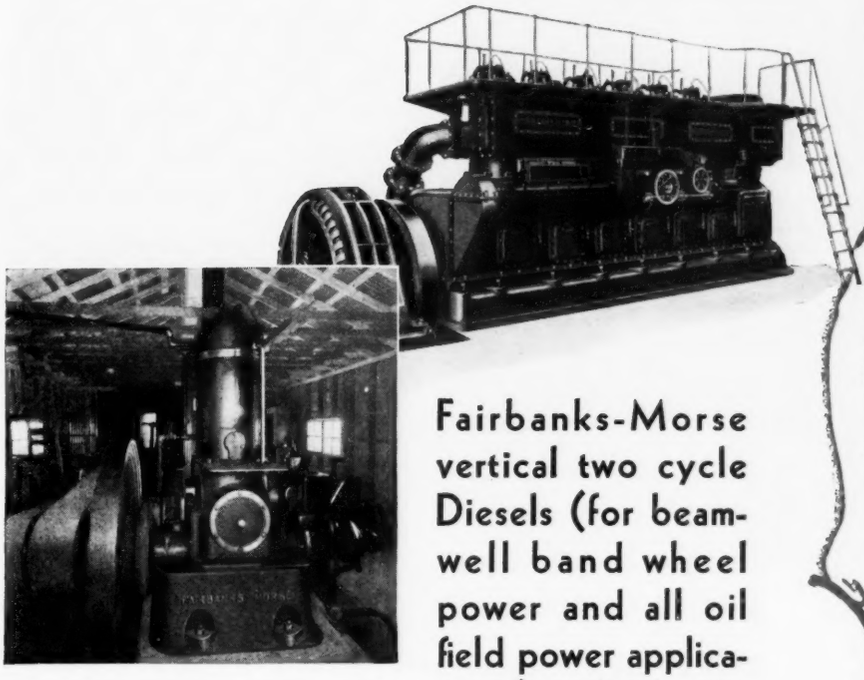
The power plant of the Hydril outfit at Oklahoma City has also come in for a lot of attention, since it is so wide a departure from the ordinary units. It consists of a three-cylinder upright, 10-10 steam engine, with double action piston valves and developing 320 horsepower at 150 pounds pressure. It is smooth running and seems to possess a flexibility equal to any of the other types for it is very sensitive to control and does not have a "high center." If the manufacturers would sell the engine separate from the rest of the equipment it is very possible that they might be able to get a couple of orders locally.

The Hydril has been operated in California with electric power and has found that motors will serve the purpose equally well. This is probably due to the shaft drive.

Contractors and engineers are not yet ready to give unqualified praise to the new equipment though there are several features that they seem more or less agreed on as being

Fig. 3—View across rig floor showing clear space. Note brake and clutch controls in front of driller and the valve control panel on his right

The POWER TREND is toward the DIESEL



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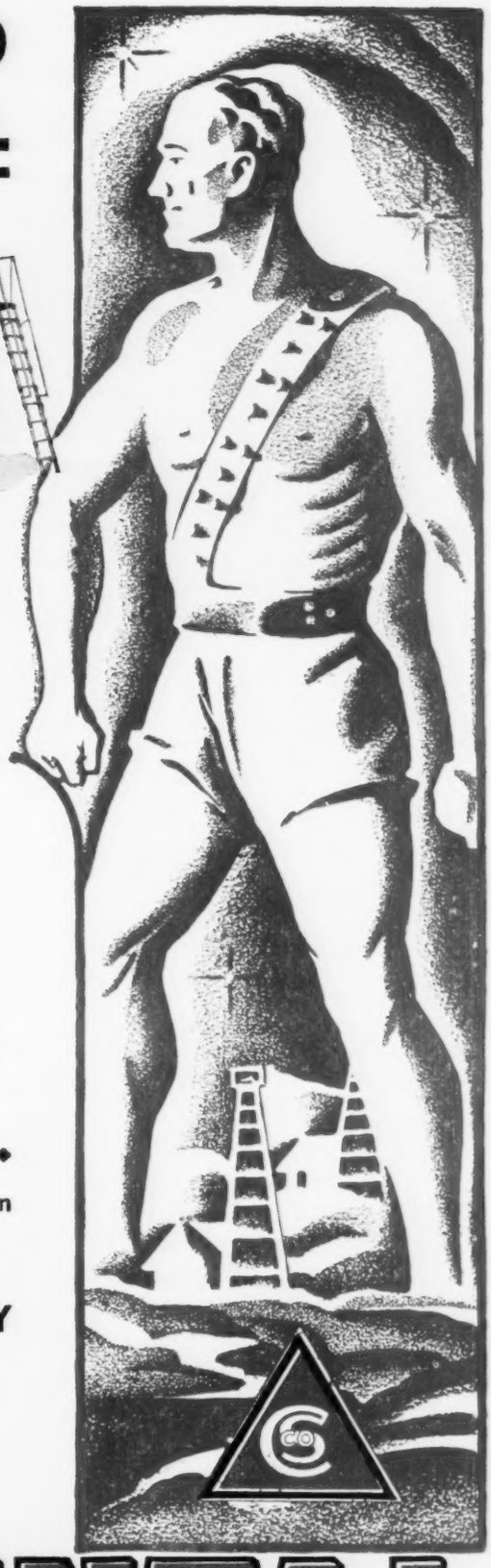

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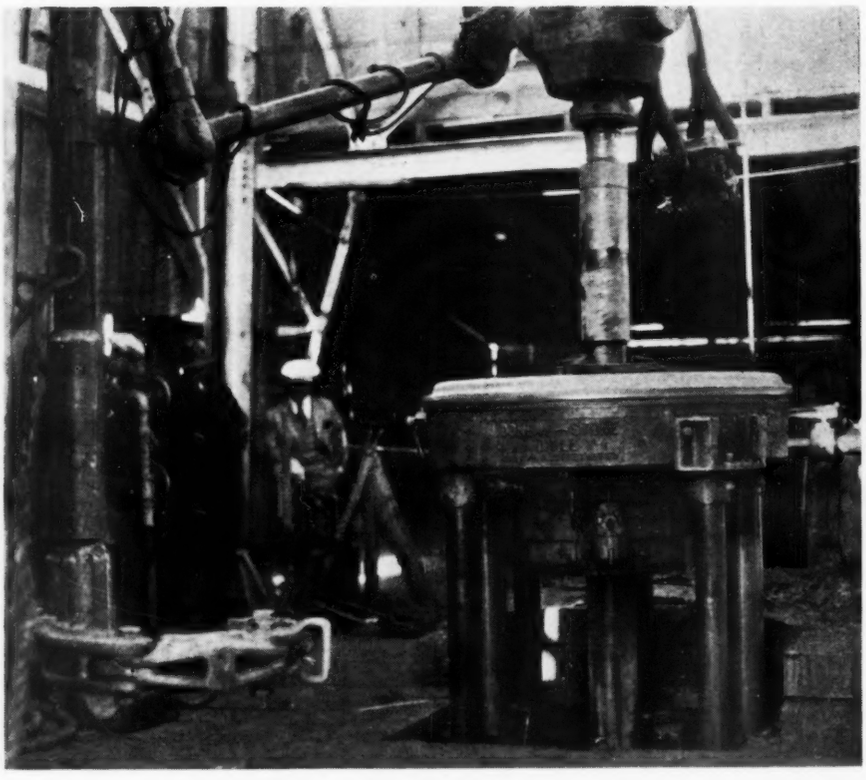

Fig. 4—Another snapshot showing the clear floor space and the table elevated to its fullest extension. Note the jointed steel hose

favorable. Among these are the safety factors that are readily apparent on entering the rig. There is considerably more clear floor space than is found on the usual rotary rig. This is due to the fact that all of the driving mechanism is below the floor and to the compactness of the draw works. Old timers miss the whipping chain and the guard that has barked so many shins.

Operators are struck with the height of the derrick floor above the ground. Due to the setting of large conductors in California the usual height of the foundation was six feet though four feet would be ample in the Mid-Continent. The 20-inch I-beams that may be noticed below the floor in Fig. 2, make it necessary to build the foundations higher than is the common practice in Oklahoma.

That the Hydril is being carefully watched is evidenced by the number of visitors that are continually on the rig. They realize that the Oklahoma City test is to be a proving ground in the Mid-Continent for the claims of the manufacturers, the Doheny Stone Drill Co., of Los Angeles. In comparison to the cost of the usual equipment the Hydril is about $10,000 higher.

NEW PATENTS

Prepared by R. E. Burnham, patent and trademark attorney, 1343 H Street, N. W., Washington, D. C., from whom copies may be obtained at the rate of 20c. State number of patent and name of inventor when ordering.

March 4, 1930

REFINING

Apparatus for treating crude petroleum—George A. Stafford and Charles D. Cook, Sour Lake, Tex. Filed Feb. 16, 1925. No. 1,749,235.

Process of purifying hydrocarbons—John C. Black, Los Angeles, Cal., assignor to Richfield Oil Co., same place. Filed Mar. 10, 1928. No. 1,749,240.

Vapor-phase method of oil conversion—Cary R. Wagner, Chicago, Ill., assignor to Gyro Process Co., Detroit, Mich. Filed Feb. 21, 1928. No. 1,749,521.

Apparatus for treating used lubricating oil—Richard M. Dilworth, Lakewood, and Fred G. Niece, Cleveland, Ohio, assignors to Electric-Motive Co., Cleveland. Filed Nov. 4, 1927. No. 1,749,571.

PRODUCTION

Fishing-tool—Alva O. Hamblen, Flint, Mich. Filed June 6, 1928. No. 1,748,980.

Bottom hole packer—Charley W. Fisher, Coffeyville, Kans., assignor to Robinson Packer Co., Tulsa, Okla. Filed July 2, 1926. No. 1,749,033.

Automatic well-flowing device—Alexander Boynton, San Antonio, Tex. Filed Dec. 1, 1927. No. 1,749,124.

Fluid-elevating apparatus (oil-well lift)—Lester H. Miles, Los Angeles, Cal. Filed June 22, 1927. No. 1,749,151.

Disk-bit—Frederic W. Hild, Los Angeles, Cal. Filed Dec. 15, 1926. No. 1,749,344.

Bailer-spear—Frank J. Hinderliter, Tulsa, Okla. Filed Oct. 19, 1927. No. 1,749,380.

Sucker-rod rotator—Clyde Stevens, Cotton Valley, La. Filed July 12, 1929. No. 1,749,722.

MISCELLANEOUS

Calibrating mechanism for positive stops for visible pumps—Walter H. Marsh, Aspinwall, Pa., assignor to Pennsylvania Pump Co. Filed Nov. 29, 1927. No. 1,749,106.

Method of treating commercial gasoline for internal-combustion engines to remove and prevent the formation of carbon—Marcus J. Fessler, Syracuse, N. Y. Filed Dec. 24, 1925. No. 1,749,244.

Process for making lubricating grease—Edwin N. Klemgard, Holly Oak, Del. Filed Mar. 17, 1927. No. 1,749,251.

Liquid-dispensing apparatus—John B. Davis, Springfield, Mass., assignor to Gilbert & Barker Mfg. Co., West Springfield, Mass. Filed Sept. 7, 1927. No. 1,749,469.

March 11, 1930

REFINING

Manufacture of lubricating oil—George H. Taber, Jr., Rye, N. Y., assignor to Sinclair Refining Co., New York, N. Y. Filed Jan. 14, 1925. No. 1,749,896.

Fractionating apparatus—Eliot H. Harris, Pittsburgh, Pa. Filed Aug. 6, 1926. No. 1,750,306.

Process of refining used oil—Joseph C. Patrick, Kansas City, Mo. Filed Oct. 28, 1927. No. 1,750,350.

Treatment of petroleum products—Francis R. Muhlenberg, Upper Darby, Pa. Filed Dec. 15, 1925. No. 1,750,420.

PRODUCTION

Letting-in tool—Patrick H. Mack, Bradford, Pa., assignor to Oil Well Supply Co., Pittsburgh, Pa. Filed Aug. 1, 1923. No. 1,749,827.

Fishing-tool—Albert G. Baumbach, Anaheim, Cal. Filed Oct. 29, 1928. No. 1,749,869.

Sounding apparatus—Bird B. Stephenson, Ponca City, Okla., assignor to Continental Oil Co., same place. Filed Oct. 7, 1927. No. 1,749,928.

Method of making drill-stems—Gustavus A. Montgomery, Dallas, Tex. Filed Apr. 11, 1927. No. 1,749,981.

Oil-well-pumping jack—Rupert B. Norris, Tulsa, Okla. Filed Apr. 5, 1929. No. 1,750,021.

Cementing-head—Newton W. Wickersham, Los Angeles, Cal., assignor to Perkins Cementing, Inc., same place. Filed Sept. 18, 1928. No. 1,750,143.

Fluid-operated pump—James A. Wray, Los Angeles, Cal. Filed Dec. 28, 1926. No. 1,750,146.

Hydraulic-control head-closure—Samuel S. Bradshaw and Charles A. Martindale, Seminole, Okla. Filed Apr. 14, 1928. No. 1,750,211.

Fishing-tool for sucker-rods—Orville J. Thompson, Franklin, Pa. Filed July 17, 1929. No. 1,750,248.

Well-shooting device—Jesse J. Hill, Independence, Kans. Filed Oct. 13, 1927. No. 1,750,405.

Tubing-line attachment—Albert L. Billenwillms, Augusta, Kans. Filed Dec. 10, 1928. No. 1,750,564.

MISCELLANEOUS

Automatic liquid-dispensing machine (gasoline)—Robert E. Collins, Topeka, Kans. Filed Feb. 13, 1928. No. 1,749,970.

Lubricant—Edward A. Rudigier, Baltimore, Md., assignor to Standard Oil Development Co. Filed Apr. 23, 1924. No. 1,750,134.

Filling-station machine—Calvin F. Christopher, Canton, N. C. Filed Sept. 28, 1928. No. 1,750,389.

Device for separating water from oil—John W. Pippin, Hebbronville, Tex. Filed Mar. 2, 1927. No. 1,750,489.

Device for separating water from oil—John W. Pippin, Hebbronville, Tex. Filed Oct. 19, 1927. No. 1,750,490.

Change Cement Specifications

TULSA—A revision in cement specifications is expected in the near future, according to an article in the "Cementer," Halliburton house organ. The revised specifications are expected to cover "portland cement," and "high early strength cement."

The former will have a tensile strength of 275 pounds at seven days, and 350 pounds at 28 days, with no three days requirements.

"High early strength" cement requirements are expected to be 275 pounds at one day and 375 pounds at three days. No other requirements will be made for this type of cement, except that later strength must not show less than at three days.

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Modern Refining—Science and Practice

By Colonel George A Burrell*

Article 16

Volatility and Anti-Knock Properties of Gasoline; Economy of Using Anti-Knock Gasoline

DEVELOPMENT of the automobile began about the year 1895, and for the first time gasoline possessed some substantial value instead of being largely a waste product of the refining industry. Then, as now, volatility was a major characteristic of motor gasoline, except that this early gasoline was much more volatile than that made today. Carburetors were of the surface puddle type, ignition was by magneto, and cylinder pressures were as high as 95 pounds per square inch. There were no chokes. Gasoline had a Be. gravity of 75-78, and an end point of 250-300 F.

In 1905 engines were enlarged, and more cylinders were added, and gasoline gravity dropped to 63-66 Be. The jet type of carburetor was next developed. Kettering put a self starter on a Cadillac motor car in 1912, and developed battery ignition.

Pennsylvania provided most of the gasoline and gravity remained a fixture until western gasolines began to sweep the markets. With only eastern gasoline to contend with the gravity specification had a real meaning. The fact of the matter is, however, that gravity is still a specification of importance to some marketers and as a consequence must be given cognizance by the refiner. This is particularly true of refiners who export gasoline in that high gravity and volatile gasolines are demanded by foreign buyers. This accounts in part for the heavy use of natural gasoline by Atlantic coast refiners.

In early years higher compressions prevailed than in many cars of today; up to about 5.5 to 1. The volatility of the gasoline sufficed for them and chokes and hot spots were not needed.

The great war markedly changed gasoline characteristics. Refiners had to cut deeper in the crude oil so that motor fuel became less volatile. In order to provide a uniform fuel for government uses President Woodrow Wilson, acting under competent advice, issued an order on July 31, 1918, to the U. S. Fuel Administrator. Thus came into use the well known New Navy specifications which contained a distillation test and a general statement covering quality. The specifications were changed four times up to March 18, 1924. These follow:

	Oct. 2, 1918	Nov. 25, 1919	Dec. 29, 1920	Mar. 1, 1922	Oct. 31, 1922	Mar. 18, 1924
Color	.....	.....	White	16	16	16
Corrosion	.....	.....	Neg.	Neg.	Neg.	Neg.
Distillation Initial	140°F.	140	140	140	131	131
20 Per cent	221	221	221	221	221	221
50 Per cent	275	284	284	284	284	284
90 Per cent	356	374	374	374	392	392
End Point	428	437	437	437	437	437
Recovery	95%	95%	95%	95%	95%	95%
Sulfur	.....	.....	.....	.....	.....	0.10%

On November 8, 1921, there was formed the Interdepartmental Petroleum Specifications Committee under the authority of the Bureau of the Budget, as an agency of the Federal Specifications Board. With the advent of a less volatile gasoline shortly after the war motor designers had to lower compression ratios and for the first time, in a commercial way, became cognizant of the motor knock. Exhaust heat was applied to engine manifolds and chokes were added to motor cars.

Next cracked gasoline began to appear in quantity and its volatility and anti-knock properties allowed compression ratios to go up somewhat but even so there were definite limits that could not be passed. As noted in the specifications, color, corrosion and sulfur specifications were added. On March 18, 1924, the term New Navy gasoline was changed to U. S. Motor Gasoline.

The present vogue in anti-knock gasolines had its roots back in the year 1912 when Kettering[1] was developing his Delco light system and encountered the knock in using kerosene in same. Many assumed that carbon was causing the trouble. Kettering labored on the problem through the war, discovered the cause of the knock, if not the mechanism, and secured the services of Thos. Midgley, Jr., whose discovery of lead tetraethyl, the work attendant thereon, did more to change our conception of gasoline quality than any other single piece of work. It has made gasoline marketers provide anti-knock fuels, helped make cracked gasoline popular, and is turning cracking systems to high temperature processes.

The present period is one where the volatility and anti-knock properties of gasoline are emphasized, and with much discrimination; where color and gravity have little significance, except in the case of color, where a dyed gasoline identifies a certain company's product, and where the sulfur specification is under scrutiny, due largely, the writer would say, to Dr. Gustav Egloff's agitation of the matter.

To a considerable degree the premium is being "knocked off" high test and anti-knock gasolines so that the public can obtain a very satisfactory fuel in many localities at motor gasoline price. The gum test is growing in significance as temperatures are being raised in cracking systems, and as they have been raised in motor manifolds.

The A.S.T.M. distillation test has been dissected until it possesses considerable usefulness, for a simple test, in that it can be now interpreted to

*Consulting Chemical Engineer, Pittsburgh, Pa.

[1]Mention should also be made of the excellent pioneering work of Ricardo, and of his subsequent work.

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form a good idea of the usefulness of a gasoline in a motor car. In the latest revised specifications the 20 per cent point has been dropped, and a maximum and minimum 10 per cent point has been added. This was done to avoid vapor locking.

Not as much can be said about the sulfur specification and the gum test. These rest on insecure grounds, and no one can interpret them so as to give a quantitative expression of harmfulness to an engine of a gasoline of more than 0.10 per cent sulfur; or gum that shows by the standard test, not over 10 milligrams per 100 cubic centimeters of gasoline, upon evaporation.

Gum and sulfur have been discussed in previous chapters of this series. This article will be devoted to gasoline volatility and its anti-knock quality. The gum test, by the way, is not incorporated in Federal specifications, but is used by producers and purchasers of gasoline to some extent. If vapor phase gasoline is produced in quantity it will take on a serious aspect.

10 per cent Point

O. C. Bridgeman[2] has found that the 10 per cent point on the A.S.T.M. curve should not be higher than 140 F., if a motor engine is to start easily at 0 F., and that a fuel will permit easy starting in cold weather but will boil if heated above the temperature of the 10 per cent point. Further that if fuel lines or carburetors reach a temperature in the neighborhood of the ten per cent point vaporization of the fuel will occur and the resulting vapor lock may interrupt the operation of the engine.

Brown[3] concluded that the ability of a fuel to start a motor at 65 F. depends very largely upon those constituents making up the A.S.T.M. distillation curve below 200 F. and at 35 F. upon the presence of those that make up the curve below 150 F. End point differences of 350 to 450 F. had no influence upon ease of starting. For acceleration he concluded that the central part of the curve is most important, as from 30 to 60 per cent of the fuel has to be vaporized for satisfactory service. For indicating the equilibrium dry point, or dew point, that part of the curve from 85 to 95 per cent is most important. The end point was found to be of least importance.

Brown also found that motor car manufacturers persisted in heating intake manifolds and carburetors to high temperatures because of their early experience with low volatile fuels of 1920-1923, so that a fuel possessing satisfactory starting and acceleration properties frequently caused trouble in these cars and that fuels having an initial boiling point of 95 F. will vaporize in the carburetor if the latter is heated to 150 F. Hence an extremely lean mixture results which will not burn in the cylinders and the motor misses fire and in severe cases prevents it from operating at all.

The Bureau of Standards[4] recently summed up its findings as follows:

(a) The temperature of complete volatility, i.e., the dew point, is determined by the 90 per cent point of the A.S.T.M. curve. The end point of this curve has no significance. Thus the 90 per cent point alone tells all that is necessary to know as to the upper portion of the distillation curve.

(b) The temperature of initial volatility, i.e., the bubble point, is determined by the 10 per cent point of the A.S.T.M. distillation. The initial boiling point has no significance in this respect, the 10 per cent point alone being a satisfactory criterion of the starting characteristics of a gasoline.

Specifications of temperature at 10 per cent, 90 per cent and some intermediate point, such as the 50 per cent point, preferably corrected for loss,[5] suffice for a complete practical specification as regards the volatility of gasoline.

Brown[6] has applied the term "effective volatility" to motor fuel performance. This is the quotient obtained by dividing the weight of fuel in the mixture delivered to the motor cylinder by the weight of fuel in the mist supplied to the carburetor. He finds that motor fuels should possess an effective volatility of not less than 45 to 60 per cent under conditions of use if the motor is to answer its throttle with a delay of not more than 4 to 5 seconds. Further, since about 30 per cent of fuel is carried into the cylinder in the form of a mist, the 30 per cent point on the A.S.T.M. curve is the most important point indicating engine performance during the warming up period or in cold weather. His general conclusions are:

"(a) That part of the A.S.T.M. distillation curve up to 40 to 50 per cent indicates effective partial volatility.

"(b) That part from 50 to 90 per cent indicates the effective volatility under steady driving conditions."

Vapor Lock

The question of vapor lock has come to the fore in recent years as refiners have improved the volatility of gasoline. It is an old symptom under a new name. It is due to too much of the gasoline assuming the vapor form when passing through the fuel passages in motor cars.

Brown notes that most fuels will operate a motor car successfully when fed to the carburetor under pressure even though they vapor lock badly when supplied from a vacuum tank, and that some lock badly after a car has stopped for a brief while due to the fuel line leading to the carburetor becoming heated to high temperatures and further, that the temperature of the air fed to the carburetor is another factor. If too high it unduly heats the fuel in the jet passage and tends to heat the entire carburetor.

Trouble appears when the volume of vapor flowing through the jet is 2 to 3 times that of the liquid volume. His practical suggestion is that the temperature at which the vapor pressure, as determined by the Reid method, is equal to atmospheric pressure, rather closely corresponds to the temperature at which definite vapor lock is first observed.

Motor Fuel Volatility

Volatility in motor fuel is secured by refiners in various ways. The crude oil itself may produce, a straight refining, a gasoline that is sufficiently volatile. Often it does not, and natural gasoline is added to "pep" up the fuel. The amount which should be added depends upon the straight run gasoline itself, upon the character of the natural gasoline, and upon the atmospheric temperature.

The amount may range from a few per cent up to 40 per cent. In fact there is really no upper limit, for natural gasoline itself can be fractionated to remove light fractions so as to make a good motor gasoline itself. But this is not using the fuel in the most economical way, except that there may be such an over-supply of the material that it can be thus disposed of, particularly through a natural gasoline operator's own service stations.

Disposing of the lighter ends of the natural gasoline as stove gas, or for enriching manufactured gas, may help the situation but there is a limited market for these light fractions of natural gasoline. Very few natural gasoline producers are in a position to sell their natural gasoline as a straight motor fuel.

The more that charging stock in cracking systems is cracked, the more volatile is the pressure distillate that is produced, so that some refiners add no natural gasoline whatever to their cracked products. In some cases the initial portions may be volatile enough but intermediate portions may have to be corrected to meet the A.S.T.M. curve.

It can be added that the refiner who today carefully controls volatility to satisfactorily meet motor car demands and who has an anti-knock fuel, will without any question of doubt, provide the public with two motor fuel characteristics that will do more than anything else to maintain his sales at satisfactory volume. Of these volatility is the most important.

An ordinary motor gasoline that knocks, but has the necessary volatility, will run a motor car, but an

[2]Before Am. Pet. Inst., Chicago, Ill., Dec. 5, 1929.

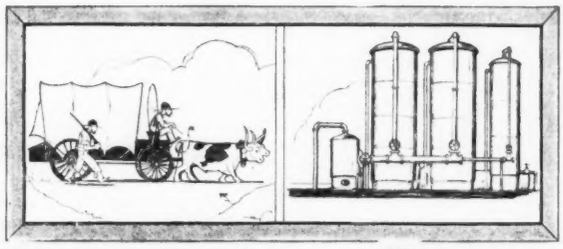
[3]Eng. & Research Bull. No. 7, 1927, Univ. of Mich.

[4] Nat. Pet. News, Mar. 21, 1929, p.65.

[5]Moving the curves over to the right when plotted on co-ordinate paper to correspond to the A. S. T. M. distillation loss.

[6]Oil & Gas Jour., 27, 107, 1929.

Billions of Bubbles



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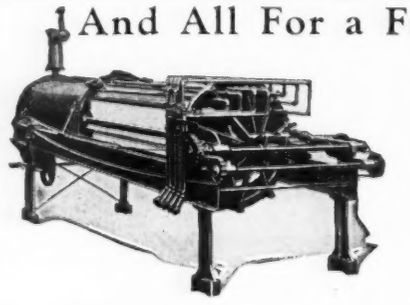

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anti-knock gasoline may be so heavy as to be useless. When lead tetraethyl was first used it was added to some fuels of poor volatility so that the resulting product was unsatisfactory. Now the volatility of ethylized gasoline is controlled by the Ethyl Gasoline Corp.

Ethylized gasoline is making great headway. Its competitors are cracked gasolines particularly from selected charging stocks, selected straight run gasolines, benzolized gasoline, the addition of large amounts of rectified natural gasoline to cracked and selected straight run gasolines, vapor phase gasolines, and combinations of the above.

Possibly some other dopes like lead tetraethyl are used in this country. Many refiners find it difficult to withstand the economy of using ethylized gasoline. Further, the Ethyl Gasoline Corp. carries a nation-wide advertising campaign. Just so long as they can make it more profitable for the marketers to use the ethyl fluid they will get the business. They have a huge staff whose object is this very thing.

Anti-Knock Gasoline

The cause of the knock in gasoline engines has not been clearly established despite a multitude of investigations, but in general it may be said that anti-knock substances raise the ignition temperature of a fuel, that in the case of a metallic compound the metal (lead in lead tetra-ethyl) is the active agent, that the knock appears when the rate of oxidation of the fuel exceeds some critical velocity, that the reactions are probably photo-chemical "chain reactions," and that in addition to certain metal-organic compounds, various groups such as amines, alcohols, some phenols, and quinones, and the aromatic naphthene and unsaturated hydrocarbons have been found most effective. Paraffins knock in an engine.

Engine factors which affect the knock are:

(a) The compression of the engine.

(b) The temperature of the combustion chamber. The higher the temperature the worse the knock.

(c) The gasoline-air ratio.

(d) The shape of the combustion chamber.

Carbon insulates the combustion chamber and so the engine runs hot. It also reduces the size of the chamber, thus increasing the compression ratio. Knocking occurs most at low speeds with the throttle wide open. Under these conditions a charge of fuel enters the cylinder at higher pressure than when the engine is running at higher speed. This charge is then submitted to the normal compression of the piston and as a result the final pressure is higher than usual. In other words the factor of real significance is the mean effective pressure; not the compression ratio.

The mean effective pressure is the

average pressure in the cylinder during the power stroke of the piston. The mean effective pressure usually gets higher as the compression ratio is raised, but not always.

A resistance of restriction in the intake fuel passages will prevent the cylinders getting their full charge. Other factors are valve timing, degree of heat applied to the mixture, and speed of engine.

Bartholomew[1] has found that temperature has a greater effect on the ratings of fuels than all other variables combined, and that variation in ratings with changes of speed, spark advance, compression ratio, throttle opening, etc., can in almost every case be traced to a difference in temperature conditions. He further noted that at a combustion chamber temperature of 402 F. only 0.35 cubic centimeters of lead tetraethyl are required to produce a given result in an aviation gasoline, while at 345 F. over four times as much, or 1.35 cubic centimeters were needed.

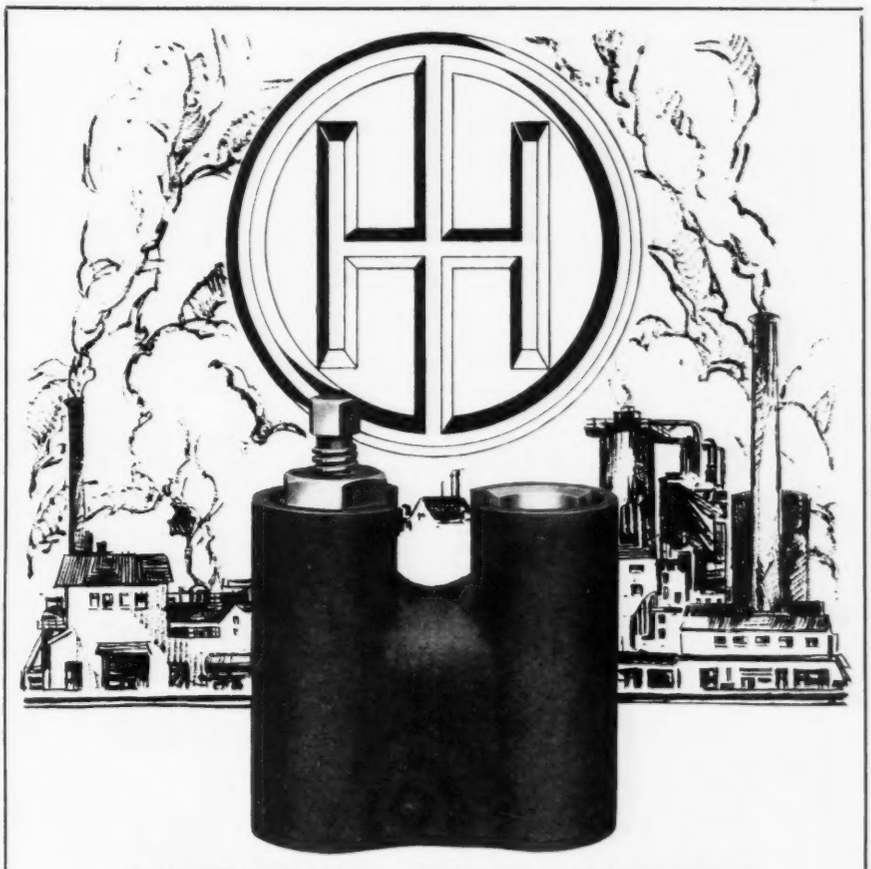
Dr. Bartholomew informed the writer that a gasoline high in aromatics and an ethyl gasoline may have the same anti-knock value when measured at relatively low engine temperatures, but the gasoline high in aromatics would be very much inferior to the gasoline containing lead tetraethyl if the measurements were made at high engine temperature.

Result of Knocking in Motors

The tendency of motor fuels to detonate prevents the attainment of a decided increase in power from present-day gasoline and stands in the way of further raising the end point of gasoline, without at the same time lowering the compression of the motor, because generally speaking it is high end point gasoline which knocks most upon high compression. At the moment this last is not a serious question because of the over-production of crude oil and the ease of securing volatile gasoline. Whether it will ever be a serious matter is a question.

Many people do not particularly fear an oil shortage, even if it does come, so long as it is not precipitous. Advances which have been made in securing motor fuel from coal, in hydrogenation of coal and heavy oil, in cracking and in manufacturing Diesel engines, and in making better gasoline engines, portend that should a serious shortage of oil impend, a host of technologists in mass attack on these and other problems, would reduce the likelihood of danger from such a shortage to a condition where substitute fuels, more gasoline from oil, use of heavy oil engines, and more power from present day gasoline (due

[1] NAT. PET. NEWS, Oct. 16, p.37.



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Bootlegging in Patents

There is bootlegging in patents just as there is in gasoline or liquor It is important to watch your step when dealing with any bootlegger

(1) The patent bootlegger appropriates what isn't his and sells it for his profit regardless of consequences to the buyer

(2) The gasoline bootlegger usually buys his goods with

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to better engines) would satisfactorily solve the problem.

However, at the moment, anti-knock fuels are in demand and give more power to the present day engine. Increase in compression without detonation gives the motor increased punch or power, which automatically gives some increase in miles per gallon, or the advantage may be taken altogether as increased efficiency, making the power of the high compression engine just the same as the present one. Automobile engine manufacturers tend, at the present time, to produce a high compression motor which has both increased efficiency and more power, making the cars both better and more "peppy."

James[8] finds that an increase in compression ratio of 20 per cent, 4.0 to 4.8, brings about an increase in mileage of about 14 per cent, accompanied by an increase in performance at 20 miles per hour that can be equaled without change in compression ratio only by increasing the rear axle ratio about 12 per cent with a corresponding decrease in mileage of about 9 per cent, or by increasing the piston displacement with a constant rear axle ratio of about 9 per cent, which brings about a decrease in mileage of about 4 per cent.

By increasing the compression ratio 20 per cent, from 5 to 6, the mileage is increased about 10 per cent, with an improvement in performance that can be obtained without change in compression ratio only by a sacrifice of about 6.75 per cent in mileage if the rear axle ratio is increased.

If the compression ratio is increased from 6 to 7 he finds that the mileage is increased about 7 per cent and that the improved performance can be equaled without change in compression ratio only by a corresponding decrease in mileage based on that obtained from the 7 to 1 compression motor of about 11 per cent by increasing the piston displacement.

Brown[9] notes that different results will be obtained, depending upon the intensity of knock under which fuels are tested. If the fuels are rated according to compression ratio at which incipient detonation occurs, the fuels will be tested in one order if the ratings are obtained as the compression ratio at which maximum power is obtained, or if the comparison is made at high knock intensity, another order appears, and if the tests are made with the carburetor adjusted for the most knocking in each case, still another order develops.

The Manhattan Oil Co., Kansas City, found[10] that the power developed (watt hours per pint of fuel) at a compression ratio of 4.0 to 1, using different fuels, was as follows:

	Watt Hours per Pint
Straight run gasoline from Russell, Kan., crude oil.....	450.0
Cracked gasoline (Russell, Kan.) from a low temperature, low pressure process	480.0
25 per cent benzol—75 per cent Russell, Kan., gasoline	485.0
Cracked gasoline from Smackover, Ark.	490.0
Vapor phase cracked gasoline	503.0

At a comparison ratio of 5.0 to 1 the following results were obtained:

	Watt Hours per Pint
Cracked gasoline from Russell, Kan., crude oil	498.0
25 per cent benzol—75 per cent Russell, Kan., gasoline	503.0
Cracked Smackover gasoline....	516.0
Vapor phase cracked gasoline	530.0

At a compression ratio of 6.25 to 1 the following results:

	Watt Hours per Pint
Cracked Smackover gasoline....	536.0
Vapor phase cracked gasoline	558.0

Sparrow[11] notes that, theoretically, increasing the compression ratio from 4.5 to 6.5 should increase the indicated thermal efficiency about 17 per cent, and that in the average motor car one might reasonably expect that such an increase in ratio would make possible an increase of about 27 per cent in the average overall economy in miles per gallon without sacrificing performance in any way.

Wells[12] found that a cracked gasoline (presumably from the Cross cracking process) gave 8 to 15 per cent more power than a straight run gasoline of high paraffin content, at compression ratios where each fuel began to knock; the straight run gasoline at 1:4.25, and the cracked gasoline at 1:4.72.

The average compression ratio of early 1929 was 5.07 to 1.0. Some run as high as 6.0 or 6.3 to 1.0. Engines used in the Schneider airplane cup races (England) are as high as 10.5 to 1. The new Ford car has a ratio of 4.22 to 1.0, and the 1929 Buick 4.3 to 1.0. Some cars listed as having low compression ratios knock worse than those of high ratios. If carbon in the cylinder is not at fault the cause may be that the latter car is not getting a full charge of fuel.

The gain in increasing the compression ratio above 6 to 1 becomes relatively less and less. At one time, about 1920, engine builders had to lower ratios, as motor car demands suddenly drew, in an enormous way, upon gasoline supplies, and less volatile gasoline had to be used. They remember that experience.

Marketers of gasoline secure anti-knock gasoline in various ways. By adding varying amounts of tetraethyl lead or other dopes, by using straight run gasoline from highly aromatic and naphthenic petroleums, by cracking charging stock from these petroleums, by adding large amounts of natural gasoline, by cracking oil at high temperatures (vapor phase processes) and by operating lower temperature processes (liquid phase) so that the time factor is increased, as by recycling. Thus even so-called paraffinic charging stocks can be cracked to make a suitable anti-knock gasoline.

[8]Jour. Soc. Aut. Engrs., Jan., 1928.
[9]Oil & Gas Jour., Feb. 28, 1929, p.156.
[10]Nat. Pet. News, Nov. 7, 1928, p.83.
[11]Am. Inst. Mg. Engrs., N. Y. City, Feb. 1927.
[12]Am. Inst. Mg. Engrs., N. Y. City, Feb. 15, 1926.

W. R. Layne

Stratford Engineering Opens Tulsa Office

KANSAS CITY, Mo.—A Mid-Continent office at Tulsa has been opened by the Stratford Engineering Co., petroleum refining engineers of Kansas City. W. R. Layne has been appointed sales manager for the Mid-Continent territory.

Mr. Layne comes to the Stratford company from Houston, where he was sales manager for the Byron Jackson Co., Los Angeles. His duties with the latter company covered special engineering problems of the oil industry. He was previously for several years chief oil pump engineer with that company.

Prior to his connection with the Byron Jackson Co., Mr. Layne was pump specialist for the manufacturing department of the Standard Oil Co. of California.

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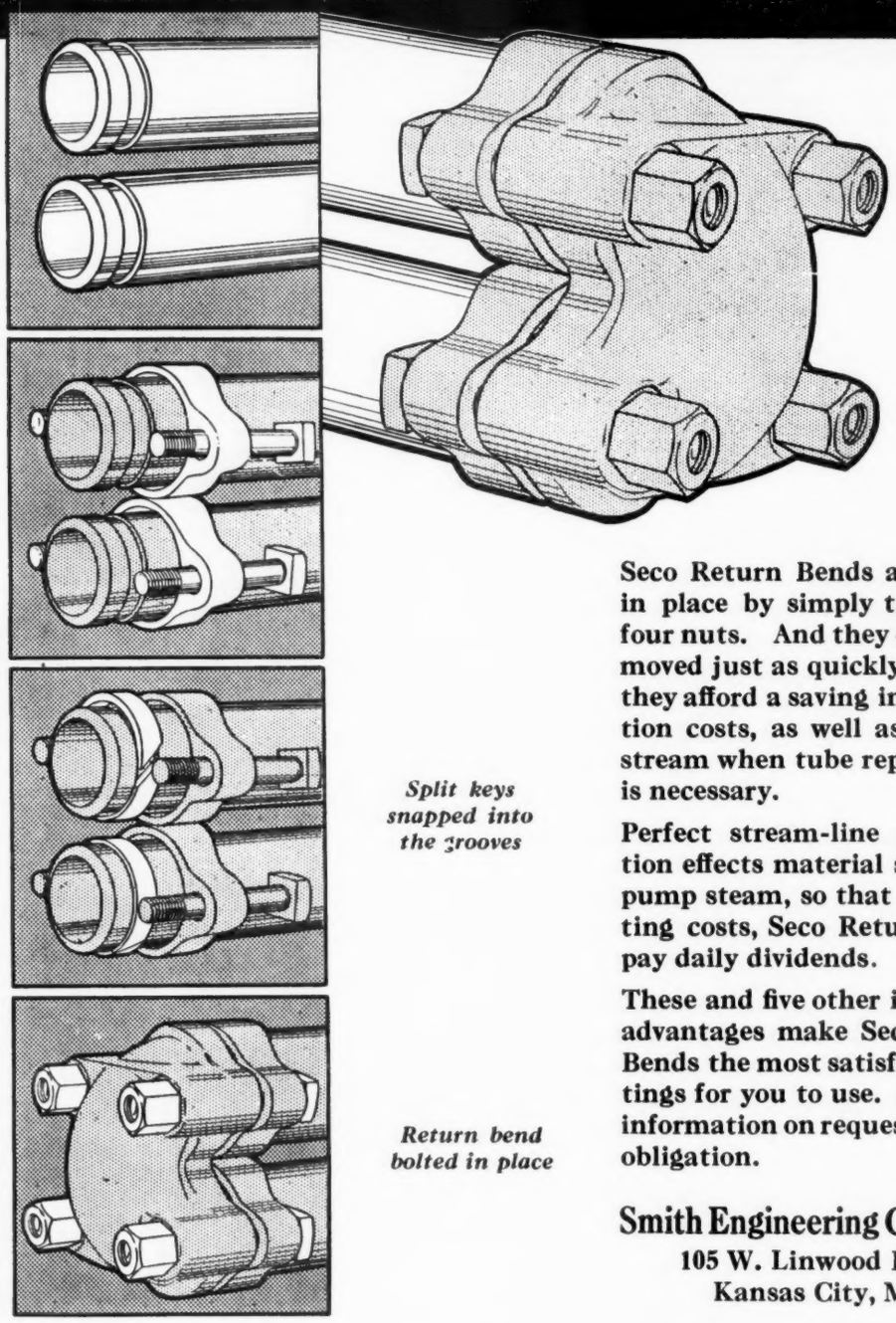

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New Refining Patents

Pressure Cracking. U. S. P. 1,747,437, Feb. 18, 1930, Eugene C. Herthel and Thos. De Colon Tifft, Assignors to Sinclair Refining Co.

A procedure has been developed for increasing the efficiency of vapor phase cracking of hydrocarbon oils under pressure. The invention relates particularly to the type of cracking process in which vapors from a cracking chamber are refluxed to produce a condensate, and a distillate is produced from residuum withdrawn from the cracking chamber.

The feature of the invention which represents an advance in the cracking art is that the condensate and the distillate, separately obtained from the cracking chamber, are heated in separate independent heaters to a cracking temperature and then discharged into the cracking chamber. The process is carried out as follows:

Raw oil is forced in a single pass and under more than atmospheric pressure through a heating zone into a vaporizing zone. The temperature in the heating zone is sufficient to raise the oil to a cracking temperature. Vapors taken off from the vaporizing zone are condensed and withdrawn as the cracked distillate. Unvaporized oil passes from this zone into a second vaporizing zone, in which the pressure is lower than in the first vaporizing zone.

Vapors taken off from this zone are condensed and used as the condensate for separate cracking and return, which step is accomplished in an independent heater in which a higher cracking temperature is employed than in the first heating zone. Residuum from the second vaporizing zone is distilled to give another distillate for separate cracking.

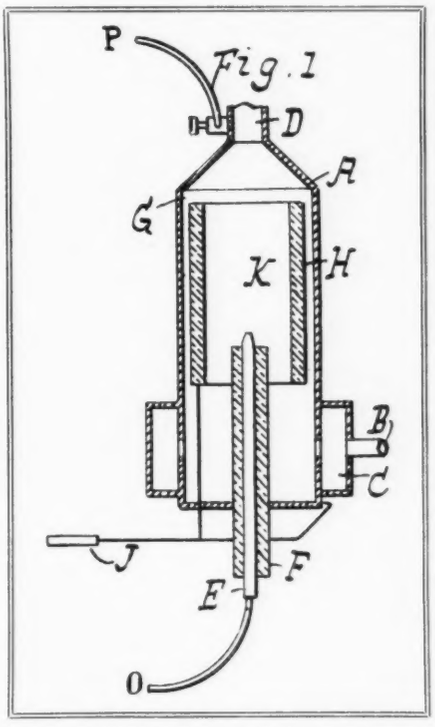
In another embodiment of the invention, a reflux condensate from the first vaporizing zone is mixed with the raw oil, and the second vaporizing zone is used as outlined above. This system of recycling the reflux condensate and the distillate from the liquid residue increases the proportion of oil from the high pressure vaporizer dischargeable as liquid residue without loss of operating efficiency of capacity of the apparatus.

As a result the process can be made to return a satisfactory yield without using excessive pressures in the high pressure vaporizer, nor excessive temperatures in the heating coils. This greatly lessens the strain on the apparatus, thus ameliorating a common difficulty in cracking operations. Deposition of solid or semi-solid coke or like carbonaceous residues is minimized, and the milder operating conditions reduce the losses caused by conversion of part of the oil to pitch, coke, carbon or fixed gases. The invention also, in addition to giving a greater yield of the desirable cracked distillates, enables the operation to be carried on for long periods without stopping to clean the apparatus.

COPIES of United States Patents can be obtained at 10 cents each, payable to the *Commissioner of Patents, Washington, D. C.* Coupons, good until used, are sold in books of 100 at $10. Photostat copies of foreign patents (if not of too recent date) can be obtained from the Commissioner of Patents at prices (payable in coupons if desired) which will be quoted on application.

Hydrocarbons in the Electric Arc. U. S. P. 1,746,934, Feb. 11, 1930, Paul Gmelin and Otto Eisenhut, Assignors to I. G. Farbenindustrie Co.

A new design has been developed for an arc furnace for treating cheap hydrocarbon gases to produce more valuable products, for instance acetylene and hydrocyanic acid from methane and its mixtures with nitrogen. Gases which may be advantageously treated in the new furnace include natural gas, waste gases from ammonia synthesis (fortified with natural gas), gases formed in the berginization (destructive hydrogenation) of petroleum and other fuels, and coke oven gas.



Apparatus for treatment of hydrocarbons with electric arcs

The new furnace is an advance in the art of treating gases in an electric arc, in that adjustment of the arc to a favorable length has now been successfully accomplished. In older designs it was difficult or impossible, even with tangential introduction of the gas, to bring the arc to the most desirable length. In this invention a central electrode is used which is insulated nearly or quite up to its end, and the length of the arc is adjusted by means of a movable layer of steatite, quartz, asbestos or other high-melting insulating material. By this expedient short circuit arcing is avoided and high yields of the desired valuable products are obtained.

In the drawing, A is a strong one-piece metal furnace mantle, which may or may not also be employed also as a counter-electrode; and G is the counter electrode in case A is not so used; E is the central electrode, fitted with insulation F and fed with current by the cable O. The cable P is for grounding the furnace on account of the high tension hazard. Gas is fed into the gas chamber C and the furnace cavity K through the pipe B, and the gaseous products are carried away at D. Ordinary alternating current may be used, but direct current or high frequency (up to 150,000) alternating current is preferred.

Methane (natural gas or methane from hydrogenated oil or coal) may be used alone, but the yields are better if it is mixed with ethylene or like gases. When nitrogen is present, one of the products of the treatment is hydrocyanic acid; but the principal object of the invention is the production of acetylene at low cost. As a patent of the Interessen-Gemeinschaft, this invention is interesting on account of the entry of the I. G. into the petroleum industry in America.

Have you considered the application of Vapor Phase Refining in your plant? The chances are that you too will find it possible to

Increase your gasoline yields,

Improve your gasoline quality, and

Cut your refining costs.

We will be glad to go over your own conditions with you and show you how.

THE GRAY PROCESSES CORPORATION

961-975 FRELINGHUYSEN AVENUE

NEWARK, NEW JERSEY

Free Service Offends Rural Patrons, Woman Marketer Learned

By N. M. Mainpa
N. P. N. STAFF WRITER

HOW to sell the rural customer? Just as the American exporter learned several years ago that the swift pace and cool briskness that sells the Anglo-Saxon temperament leaves the Latin peoples unmoved, so has the oil marketer learned that methods which sell the city motorist, often do not sell the rural gasoline buyer.

One oil marketer who has never wiped a windshield, never cut prices, never tried to sell more gasoline than the customer asked for, and, in fact, never given any of the services demanded by many oil companies of their station attendants, attributes success to the lack of these very things.

That oil marketer happens to be a woman. Her name is Mrs. Edna Wolff. Ohio jobbers saw and heard her at their February convention at Columbus, where she talked about the Independent in the oil business.

She is the right hand "man" of A. H. Frantz, president of the Purity Oil Co., Napoleon, O. She is also his sister-in-law.

They work it this way. Frequently they put together two heads. Results: One good idea. Mrs. Wolff, oftener than not, puts the idea into motion.

Mr. Frantz goes to Florida for the winter, or maybe to the West Indies. Mrs. Wolff stays at home and runs the business.

She likes the oil business. Wouldn't get out of it on a bet. Mr. Frantz sometimes tells a station man to do a certain thing. Mrs. Wolff checks up to see if it's been done.

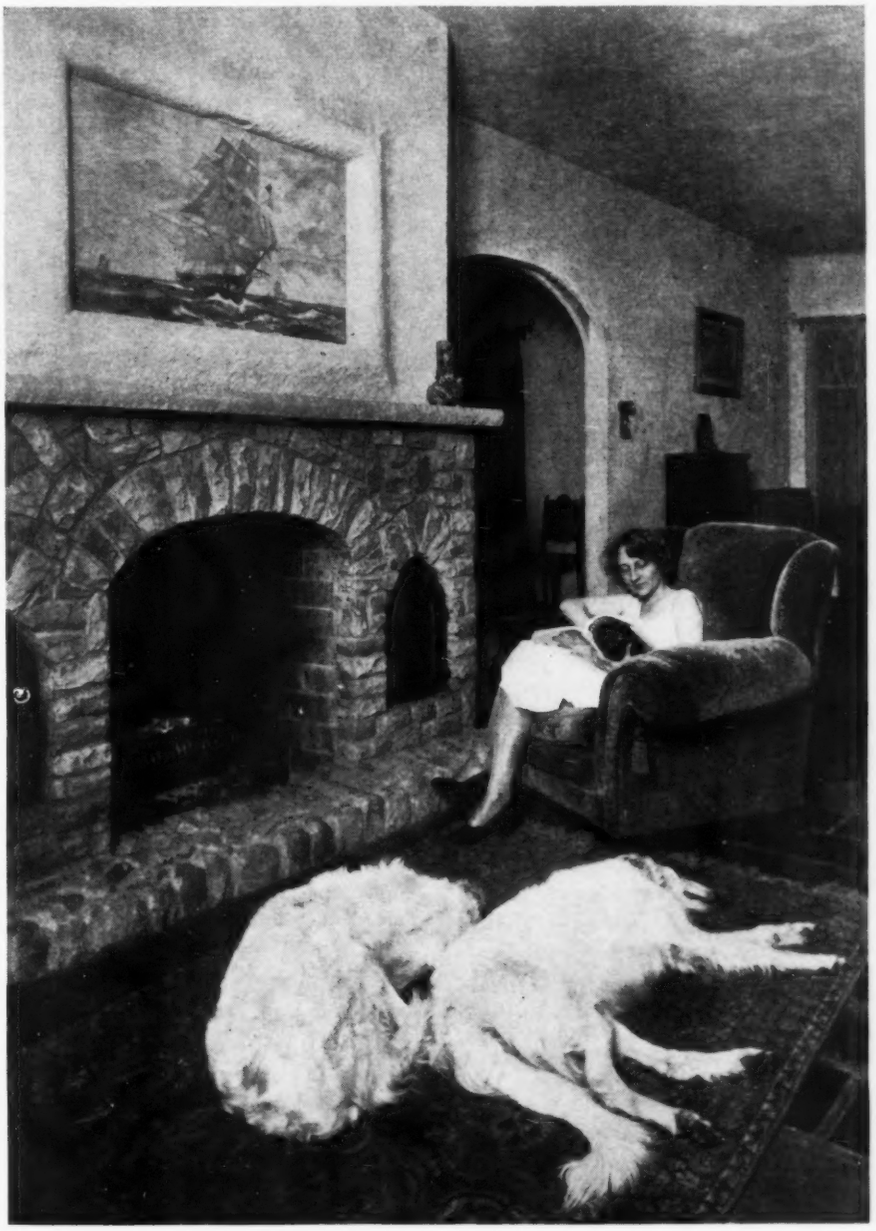
She is what you call easy on the eyes. See for yourself in the accompanying picture. She is a blond. Blue-grey eyes can penetrate mere man quite thoroughly. If such an individual should come in with any preconceived notion that he's going to put something over because she's a woman, let him never darken her office door. It were much better so.

Oh, no, you don't put things over. You find you have to talk common sense to her as you would to any-hard-boiled salesmanager, whether you're trying to sell her pencils or motor oils that pour below zero. And maybe you'll have to talk a little bit more convincingly, because she can ask lots of questions and she shoots them point blank from the shoulder and expects a good answer.

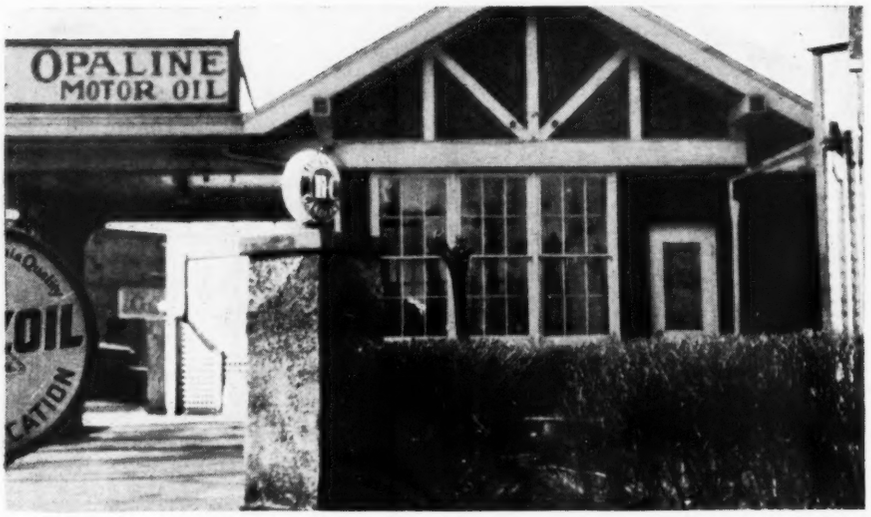
But when she is doing the selling, when customers come in to see her, she does the answering, the advising and sympathizing. "Like a country doctor" she describes her position.

She knows about all the bruised fingers, the mumps and measles that plague the families. She asks the men who come to order kerosene or to pay a bill how Willie's whooping cough is by now; or how the wife is getting along who cut her finger last week.

She inspires confidence. People be-



Mrs. Edna Wolff enjoys a quiet evening at her newly remodeled home. There's the frame for the picture she had fashioned into the wall over the fireplace and there are also Rose Marie and Sally Ann, wolfhounds of Russian ancestry



A side view of a service station of the Purity Oil Co., at Napoleon, O. Three sides of the station is almost entirely window. Ladies' rest room is at the right, and beyond that in an adjoining building, is the company's office

lieve every word she says because it rings true. She believes it herself.

"Honesty and truth," she says, "are the qualities on which our business is built. People know that they can depend on what we say and on what we sell, and for that reason our gallonage has steadily increased even with the opening of other stations in this town of 5000."

How we love to have people listen to our troubles. Mrs. Wolff does plenty of that. She has a sympathetic and understanding ear into which many tales of woe are poured. This quality, plus a you-and-I-are-pals attitude that seasons all her business dealings, have made this woman marketer known and respected throughout Henry county, not only as a good business manager, but as a vibrant personality as well.

Most of the customers are good friends of both Mr. Frantz and herself. Long business associations with them have brought lasting friendships. These customers can come in to deal direct with the boss, instead of having to deal with a representative of the big, cold, unfeeling things men call corporations, Mrs. Wolff reminded.

That's where the local oil marketer has it over the big companies.

Mrs. Wolff knows and calls all her customers by their first names.

Several men came into the office when I sat there. They came in overalls and other obviously working clothes. For each one, she had a cheerful greeting, an inquiry about the family or of some event of interest to the man. Or, she would invite the man to come to see the home she had just remodeled, and to bring the wife along.

I went to see this house. I had to after hearing her describe it—how she had taken an old frame house, scooped out the interior, transformed a clutter of rooms into Spanish spaciousness, thrown a stone-edged fountain into the front room, how she had taken the mason's trowel to show the plasterer just how she wanted the Chrom-rock walls finished, and so on.

It was an ordinary looking house from the outside.

"Haven't started on the outside yet," she said noting, perhaps, a tone of disappointment in my voice.

But inside, how spacious and modern. Spanish influence. Odd-shaped flat designs here and there in the rough stucco, that's what she had wanted. So she had shown the man herself just how to do it when he couldn't get the idea from her explanation. She had stood over him while he fashioned a frame over the fire place right into the wall of the living room, into which she later inserted a painting.

A front room had been transformed into a conservatory. In it was a fountain, enclosed by a low rough stone wall. The fountain measured six feet across. Gay gold fish and other brilliant hued species disported in the water. There were ferns and flowers and bird cages. Tall windows reaching from floor to ceiling had orange-yellow drapes to match the color of the Romany tile floor.

She invited me to sit down. We sank luxuriously into soft easy chairs. We were far away from the world of filling stations.

I noticed the plain neat curtains she had chosen to match the ivory walls of the living room.

"I've been quite busy in the evenings," she said, "getting those things hemmed.

"Oh, yes, I do all my own house work. I sew and dust and cook and clean.

"Now, the major companies," she continued. "see what they are doing. I made it my business to notice the gasoline pumps that lined the highway from here to Columbus on my recent trip. What idea did I get? What idea would anyone get?

"There is poor management. Else why a gasoline pump to every hot dog stand? What dignity is there in standing up a pump to every sandwich stand in making gasoline a mere side line to every greasy-looking counter?"

All this time Rose Marie and Sally Ann had been content to play on the big lawn surrounding the house. But now they started running across the street. Mrs. Wolff tapped on the window. They came bounding back into the yard.

"They do that about this time every day," she explained. "Get restless and start toward the office to see me."

"But how are the major companies to blame for all those gasoline pumps? They didn't put them there," I volunteered.

"No?" was her rejoiner, as she began a verbal unfurling of the Independent flag. "The major companies sold them the gasoline. If they didn't sell it to them, the pumps wouldn't be there."

"Wouldn't YOU sell them?" I asked in some amazement.

"Certainly not. I will not sell gasoline to any of these hot-dog stands, nor to any one whom I think is not fitted to enter an already overcrowded business. I always try to discourage a new entry, who sees only the glimmer of gold in a gasoline pump."

A farm woman had come to her office one day. A state route was to be opened this summer along her farm. All the farm women along the route were talking of installing pumps in their front yards. But, this woman reasoned, if all her neighbors put in pumps, what profit would there be for her? She'll go down to see Mrs. Wolff and get her advice.

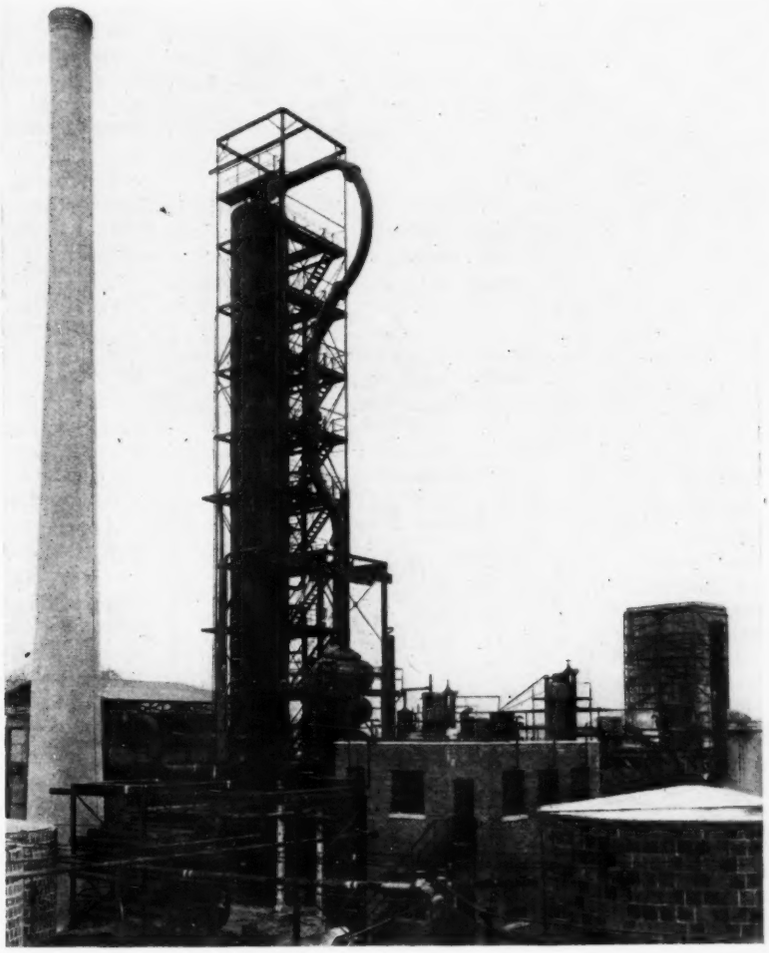
She got the advice. Mrs. Wolff told her about conditions in the oil business, told her from a background of eight years of experience, how there would be price cutting, told her it was a "tough racket." She also told her she wouldn't sell her any gasoline.

Before the farm woman left, she was thoroughly convinced of the folly of putting in a pump in her front yard. Let the others if they will, she said. She thanked Mrs. Wolff for what she had told her.

"But the major company salesman has his quota to make," Mrs. Wolff continued. "He'll sell to anyone at all to make that quota."

She told of a price war that started recently over a package of cigarets. It spread all over the county. She put on her hat and coat and went out to investigate, when she heard of it.

She found at a little crossroads



Atmospheric Distillation Plants

Seven products are continuously recovered to specification by the Foster Wheeler atmospheric distilling unit, here illustrated. The products include gasoline, heavy naptha, kerosene, gas oil, wax distillate, heavy wax distillate and cylinder stock residuum. The unit will handle 4,000 barrels of crude per day.

The cooling tower at the right is also by Foster Wheeler.

This installation is another refining unit completely designed and erected by Foster Wheeler.

FOSTER WHEELER CORPORATION

165 Broadway, New York, N. Y.

Branches in Principal Oil Centers

Foreign Associates:—

Foster Wheeler Limited, London, England.
Societe Anonyme Foster Wheeler, Paris, France.
Foster Wheeler Limited, Toronto—Montreal—Canada

FOSTER WHEELER

junction called Miller City that a general store and pool room had started it. The pool room sold cigarets at the regular price of 15 cents per package. So the general store, in an effort to get business, began selling them two packages for a quarter.

That made the pool room proprietor sore. He countered with "I'll put in a gasoline pump!" The general store already had a pump selling a major company gasoline.

The pool room proprietor installed his pump, filling it with a competitive major company gasoline. He cut his price 1 cent to get business away from the general store. That gave the general store the bright idea of slashing the price another cent, in retaliation. Gasoline retailers in the territory felt the effects of the lowered prices. That was last October.

Mrs. Wolff picked up the telephone and called up the headquarters of both companies. They would investigate, they promised. On March 1, hostilities ceased when prices at Miller City returned to general state-wide structure. Retail price had been 2 cents below the state-wide, and tank wagon 1 cent below for four months.

There was an example of selling to the wrong kind of customer, Mrs. Wolff pointed out.

Again she tapped on the window to call Rose Marie and Sally Ann back. They came leaping up on the steps this time, snapping at this intruder who sat comfortably inside. Come around to the cellar door and I'll let you in, called Mrs. Wolff through the unopened window. So around the house to the back they bounded. She let them in.

Rose Marie and Sally Ann are two Russian wolfhounds. They are known throughout the community as pets of Mrs. Wolff. Sometimes Mrs. Wolff gets a telephone call that the dogs are here, and shall we feed them? No, send them home, is the order, and home they come in short order.

The temperament of the farmer is peculiar. He is a hard one to deal with, Mrs. Wolff says. Most of her customers are farmers. They're independent as can be. You couldn't wipe off a windshield for them without them resenting it. A woman who lives on a farm and is accustomed to doing her own work wouldn't permit it. She would most likely take the cloth from your hand and say "Here, let me do that."

The man is like that too. He's not used to service and it doesn't go down with him. So we never wipe windshields, Mrs. Wolff confesses.

If our stations were too elaborate, they wouldn't like that either, she says.

"When I first took over my job with Mr. Frantz eight years ago, I fixed up the office with drapes in the windows, the floors and furniture ever so clean, and everything else spick and span. Did they like that?

"No. The men didn't want to come in with their muddy shoes and boots and in their overalls. They were afraid of tracking up the nice floor. So I said to myself, 'Well, it doesn't go here.' So I took down the drapes and went easy on the scouring powder."

Not that the office and stations aren't clean enough. But they don't shine too much.

Many of the customers have become good personal friends. They come to the house often. There isn't a supper or a lodge affair, a church entertainment that is not always attended by either Mr. Frantz or herself.

Sells Drainings

USED crank case oil is collected by the Purity Oil Co., Napoleon, O., and sold as such for about four cents a gallon. Townsfolk buy it for starting fires in their furnaces or for oiling roads. Farmers buy it, too, for sprinkling around the chicken coop to keep lice out. It is usually sold by the barrel.

Once a year one of the important churches in the community gives a large supper. Fried and stewed chicken is the attraction. Kerosene for the stoves in the church is always donated by the Purity Oil Co.

Sometimes the churches or some other organization need a truck for a day or an evening. They come to Mr. Frantz or Mrs. Wolff. They always go away with the promise of a truck.

The good will that is built up in this way can't be bought with newspaper space, Mrs. Wolff says. Therefore the Purity Oil Co. does not advertise. They never talk about what they do. The people do that. One tells the other. Soon, the whole community knows that the kerosene for the stoves that cooked that supper for instance, came from the Purity Oil Co.

Religious feeling always seems stronger for some reason in the smaller communities. The southern portion of Napoleon is entirely Catholic. So the company picks out a good Catholic truck driver and sends him to sell in that territory. Those people like to deal with one of their own faith.

Another section of the town is entirely German. Many of them do not speak English. So a good German boy drives the Purity truck into that community.

There is the problem of credits that every marketer must contend with, particularly in the rural communities. Anyone who is a good customer and has good standing in the community can have credit with this company. Only when the customer turns out to be dishonest, will the company force an account. Only a few times has this been necessary.

Sometimes they have to wait a long time for their money. One farmer had had particularly hard luck. His crop had failed, he had a family. He came in to talk it over with Mrs. Wolff. Of course, he told her, she could press her bill for the $88 due the company. But he would be penniless. His farm was to be auctioned off soon.

Other farmers gathering at the auction would hear that the Purity Oil Co. was among the creditors. They would never forget that. Farmers are like that.

Anyway, Mrs. Wolff wouldn't do that. She felt sorry for him. Take his last $88 that might help him get established elsewhere? That would help feed the children and give them shelter? No. She could get along without the $88 better than he.

But business is not run on sympathy, you will say. Neither is it run on grim selfishness. There must be a happy balance.

The man was honest and sincere. He was very glad. He signed a note before he left town. Somewhere in a larger city that man is working trying to get back on his feet to pay off his debt.

Another farmer who couldn't meet his bills offered her a mortgage on his crops. She wouldn't take it, told him to pay it when he could.

Would any of these customers leave the company to buy from some one else? Would others, hearing of the unselfish and fair treatment afforded these people, quit them to trade at some other station? Eleven drive-in service stations have opened in that territory since the Purity first started in business 10 year ago, but none of their customers have deserted them. Two Independents have installed bulk storage within that time.

The company's gallonage has doubled since the time it entered business. It operates four service stations, two in Napoleon, one in Liberty Center and one in Holgate. It has total storage capacity of 75,000 gallons. It operates seven trucks in the country districts.

Mrs. Wolff was Miss Edna Hess when she joined the company is 1922. Her husband is a salesman for the company, traveling among the rural trade of Henry county.

The Island of Aruba in the Netherland West Indies exported 29,000,000 barrels of crude oil to the United States in 1928, 360,000 barrels to Canada, 70,000 barrels to England and 60,600 barrels to Mexico.

Wadhams Aids Jobber Customers Through Newspaper Advertising

CHICAGO

WADHAMS OIL CORP. is marketing its Ethyl brand of gasoline literally in its own front yard—in greater Chicago—obtaining distribution through established jobbers and advertising in a Chicago daily newspaper to create consumer demand.

The gasoline is shipped in tank car lots from the company's refinery at East Chicago, Ind., into Chicago. These jobbers afford Wadhams about 480 outlets through company owned and operated stations and dealers.

Jobbers handling Wadhams Ethyl gasoline are the Pennsylvania Oil Co. of Evanston, Apex Motor Fuel Co., Blue Ribbon Oil Co., Inter-Ocean Sales Corp., Ivory Oil Co., and the George C. Peterson Co.

The first newspaper advertisement was published in the Chicago Sunday Tribune, Jan. 26. The advertisement, a full page insertion, lists the names of the six jobbers and the following paragraph:

"Their service everywhere at your hand—These leading figures in Chicago's gasoline distribution cordially invite you to business-like gas filling, draining and refilling of motor oil, complete car lubrication, and other similar servicing through their widespread range of retail stations and responsible dealers—one of them certain to be found conveniently near you. Learn to know their distinctive signs—for there you will find competence, courtesy, and reliability carried to the same high level as their dependable products."

Other advertisements in the Chicago Tribune to create consumer demand for the jobbers are scheduled for March, April, May and June.

Wadhams is a regular user of a Milwaukee radio station, sponsoring sport programs. A recent basketball game, in which Northwestern university participated, was broadcast for the Pennsylvania Oil Co. of Evanston, marketing in Evanston, Ill., the home of Northwestern university.

A daily Chicago newspaper was used for a double purpose—to create a demand for the Chicago jobbers and to reach the consumers in Wisconsin where Wadham's has distribution over the state. The Tribune, a morning newspaper, has much circulation in Wisconsin, and especially around Milwaukee, headquarters of the Wadhams Oil Corp.

Interpretation of Rule 1 Amended

NEW YORK, March 15.—The National Committee on Interpretation of the Code of Marketing Practices has amended the interpretation to Rule 1 of the code to enable dealers to remove equipment of a supplier so another supplier may install his equipment after proper notice has been given the first supplier that the dealer no longer will handle the first supplier's goods.

Some suppliers have refused to remove their equipment when properly notified, it was said at the American Petroleum Institute, although no hindering contracts were involved.

Pour the Southland
into Your Gas Tank
1-306-206
THE MOST important announcement to Chicago car-owners since the introduction of high compression motors.
Wadhams
Gasoline
IN the petroleum-using world, Wadhams gasoline has long held a leadership name. Although serving only a limited territory, its fame has reached national proportions.
Signally honored in its home field and impressing itself on thousands of visiting tourists, it has become known throughout the "inside" world of fuel marketing as maintaining the highest specifications of any
Wadhams with ETHYL

Part of the full page newspaper insertion of the Wadhams Oil Corp. published for the six jobbers distributing Wadhams Ethyl gasoline in greater Chicago

Excessive Refinery Throughput Continues In January; Crude Stocks Cut

By J. C. Chatfield
N. P. N. STAFF WRITER

PRODUCTION and consumption of crude oil in the United States continued approximately in balance during January according to reports of the U. S. Bureau of Mines.

Refiners continued, however, to keep their runs above 70 per cent of capacity, with the result that total stocks of petroleum and its products increased 5,000,000 barrels in the month.

Refinery runs of crude oil to stills averaged 2,585,904 barrels per day, a decrease of only 16,000 barrels daily average from the rate of operations in December. In order to have kept total petroleum stocks from increasing in January it would have been necessary for refiners to have reduced their runs about ten times as much as they actually did. Of course, producers also would have had to cut back their output about 160,000 barrels daily average at the same time to give a balanced picture.

Looking only at the crude oil supply and demand figures, it is found that California output was 1,024,000 barrels greater than refinery demand causing that great an increase in stocks there, while east of California demand for raw material exceeded the supply by 1,565,000 barrels.

Crude runs to stills by all reporting plants in January were only 1.7 per cent greater than in January, 1929. But at the same time gasoline production was 5.14 per cent greater than last January, which illustrates clearly the fact that crude oil requirements of refiners are not growing at any thing like the rate that gasoline demand is increasing.

The yield of gasoline from crude oil in January was 45.1 per cent which compared with 43.6 per cent 12 months ago and 40.5 per cent in January, 1928.

The increasing yield of gasoline at California refineries is particularly striking and interesting in view of the large throughput of West Coast refiners. In January the gasoline yield in California was 40.8 per cent of the crude charge, as compared with 36.3 per cent in January, 1929, and 32.4 per cent in January, 1928.

In January, a year ago, California refiners produced 6,998,000 barrels of gasoline from 19,272,000 barrels of crude oil charged to stills. This year in January California refiners ran 18,367,000 barrels of crude to stills which was a reduction of 4.7 per cent under the previous January. But the reduction of crude runs was meaningless as far as gasoline was concerned, since the lesser amount of crude yielded 7,510,000 barrels of gasoline, an increase of 512,000 barrels or 7.0 per cent. The state produced 20.7 per cent of the total U. S. output of gasoline as compared with 20.4 per cent in January 1929.

Although the situation is less striking in other areas, somewhat similar comparisons may be made.

The most substantial increases in crude runs in January, as compared with the same month last year, were by refineries in Indiana-Illinois, in-

U. S. Gasoline Supply and Demand

(All figures in thousands of barrels)

Year	Daily Average Production	Imports	Total New Supply	Domestic Shipments	Exports	Total Demand	Total Stocks End of Period
1924	583	9	592	505	79	584	30,823
1925	711	10	721	613	86	689	38,875
1926	821	15	836	717	119	836	39,023
1927	905	14	919	813	121	934	33,316
1928	1,031	12	1,043	898	145	1,043	33,066
1929	1,190	24	1,214	1,019	168	1,187	43,115
Month							
Jan. 1929	1,108	16	1,124	729	150	879	40,648
Feb.	1,117	14	1,131	813	137	950	45,704
Mar.	1,112	11	1,123	887	155	1,042	48,205
Apr.	1,155	27	1,182	1,067	154	1,221	47,015
May	1,170	23	1,193	1,101	169	1,270	44,648
June	1,187	24	1,211	1,105	194	1,299	41,991
July	1,221	30	1,251	1,189	195	1,383	37,880
Aug.	1,242	26	1,268	1,218	182	1,400	33,788
Sept.	1,238	30	1,268	1,140	147	1,287	33,222
Oct.	1,279	33	1,312	1,059	195	1,254	35,042
Nov.	1,245	33	1,278	1,050	136	1,186	37,780
Dec.	1,198	23	1,221	856	192	1,048	43,115
Jan. 1930	1,165	35	1,200	813	176	989	49,661
Per cent change from prev. mo.	— 2.75	+52.17	— 1.72	— 5.03	— 8.33	— 5.55	+15.18
Per cent change from Jan., 1929	+ 5.14	+116.23	+ 6.76	+11.52	+17.33	+12.51	+22.17

United States Supply and Demand of All Oils

Daily Average (thousands of barrels)

Year	Crude Production	Crude Imports	Refined Imports	Natural Gasoline Production	Benzol Production	Total New Supply	Crude Exports	Refined Exports	Domestic Demand of All Oils	Total Demand	Total Petroleum Stocks	*Total Crude Stocks
1925	2,092	169	45	72	5	2,383	37	275	1,990	2,302	544,861	424,086
1926	2,112	165	57	89	6	2,429	42	318	2,137	2,497	521,136	397,434
1927	2,469	160	37	106	7	2,779	43	343	2,200	2,586	597,143	465,843
1928	2,463	218	32	116	8	2,837	52	370	2,352	2,774	619,925	490,788
1929	2,755	216	82	143	8	3,204	72	372	2,575	3,019	682,069	534,526
Month												
Jan. 1929	2,644	260	29	128	8	3,069	64	378	2,243	2,685	626,422	492,014
Feb.	2,703	251	32	133	8	3,127	60	340	2,389	2,789	635,927	499,897
Mar	2,662	219	48	139	9	3,077	51	348	2,373	2,772	645,381	506,081
Apr.	2,670	261	88	142	9	3,170	58	345	2,551	2,954	651,873	509,608
May	2,723	244	88	140	9	3,204	62	353	2,672	3,087	655,480	512,212
June	2,780	220	81	142	9	3,232	87	413	2,547	3,047	660,999	515,990
July	2,946	197	102	142	9	3,396	101	399	2,699	3,199	667,166	523,613
Aug.	2,977	187	111	145	9	3,429	72	407	2,783	3,262	672,317	532,975
Sept.	2,909	232	91	152	8	3,392	66	285	2,860	3,211	677,737	537,421
Oct.	2,842	186	117	158	9	3,312	93	450	2,649	3,192	681,484	538,313
Nov.	2,605	151	112	150	8	3,026	86	348	2,693	3,127	678,474	533,337
Dec.	2,592	190	77	144	8	3,011	67	396	2,431	2,894	682,069	528,939
Jan. 1930	2,563	176	123	142	8	3,012	58	386	2,407	2,851	687,049	528,398
Per cent change from prev. mo.	— 1.12	— 7.37	+59.74	— 1.39	+ 0.85	+0.03	—13.43	— 2.59	— 0.99	— 1.49	+ 0.73	— 0.10
Per cent change from Jan., 1929.	— 3.06	—32.31	+324.14	+10.94	— 4.00	1.86	— 9.37	+ 2.12	+ 7.31	+ 6.18	+ 9.68	+ 7.39

*Includes fuel oil in California.

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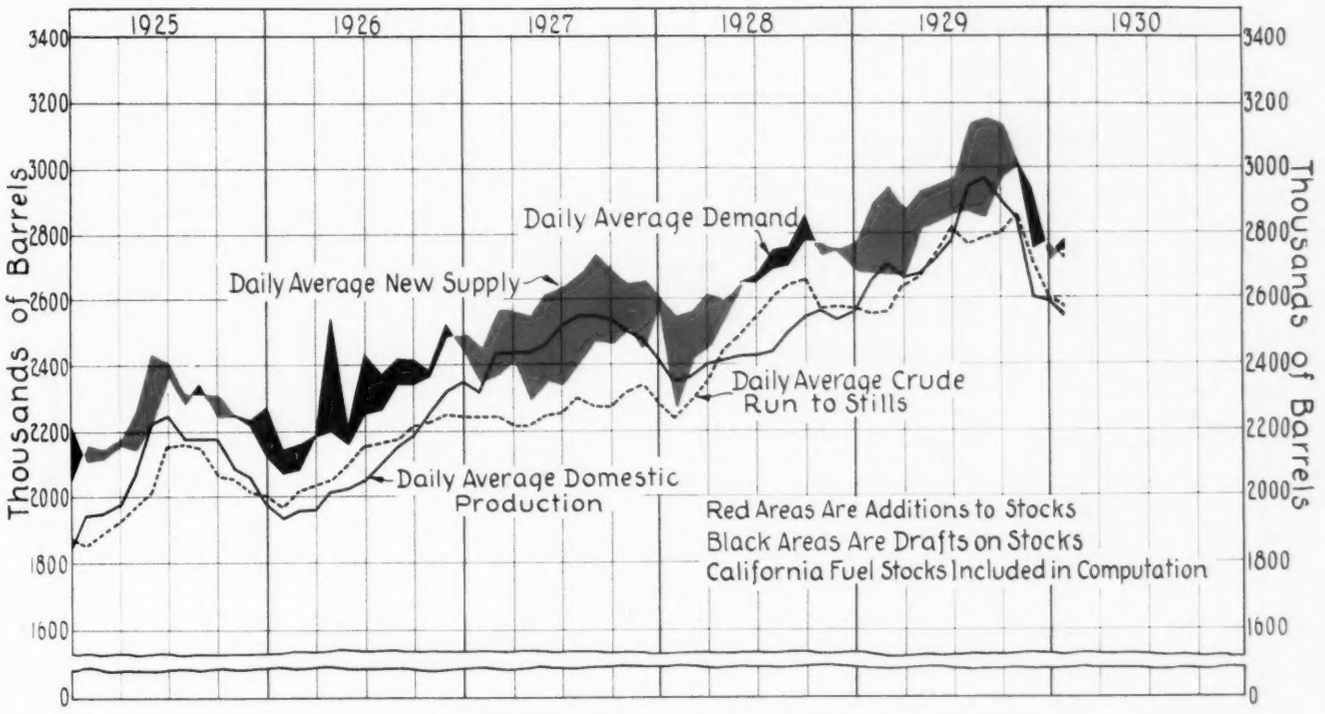
Crude Oil Production and Demand



January domestic production	2,563,000	Bbls. Daily av.	
January imports	175,800	Bbls. daily av.	
Total new supply	2,738,800	Bbls. daily av.	
January indicated demand east of Calif.	2,033,500	Bbls. daily av.	
January indicated demand for Calif. exclusive of exports	664,200	Bbls. daily av.	
January exports	58,322	Bbls. daily av.	
Total indicated demand	2,756,000	Bbls. daily av.	

Stock at refineries east of Calif. Jan. 31	44,508,000	Bbls.
Stock in pipe lines and at tank farms east of Calif.	335,318,000	Bbls.
Stock of light Calif. crude	41,868,000	Bbls.
Stock of heavy Calif. crude and fuel	106,704,000	Bbls.
*Total stocks of crude	528,398,000	Bbls.
Decrease in stocks in January	541,000	Bbls.
Stocks Jan. 31, 1929	492,014,000	Bbls.

*Exclusive of stocks held by producers which amounted to 6,350,000 barrels.

land Texas and on the Gulf Coast of Texas. Indiana-Illinois refiners increased their still charges 9.5 per cent and brought their gasoline output from 14.5 per cent of the U. S. total to 15.4 per cent of the U. S. total.

Texas Gulf refiners increased their runs 13.59 per cent but with different crude their gasoline output from 16.7 per cent to 15.9 per cent of the U. S. total. Inland Texas refiners increased their crude runs 13.62 per cent and brought their output of gasoline from 4.9 to 5.6 per cent of the U. S. total.

The January Bureau of Mines report is interesting in that it gives our industry its first peek at 1930 consumption, as indicated by shipments of gasoline from refineries. While this figure for a single month cannot be accepted as an index to the year's demand it is helpful and important.

Total shipments of gasoline in January averaged 989,000 barrels per day, an increase of 12.51 per cent from total demand in January, 1929. Exports during the month averaged 176,000 barrels per day, as compared with 150,000 barrels last January, an increase of 17.33 per cent. Domestic shipments from refineries averaged 13,000 barrels per day, as compared with 29,000 barrels the previous January, an increase of 11.52 per cent.

Kerosene

Refiners cut their output of kerosene 11,000 barrels daily average in January to 145,000 barrels per day. This was 7 per cent under December and 4.6 per cent under January a year ago.

Although domestic shipments of kerosene were 14.16 per cent below those in December, there was an in-

Daily Average U. S. Crude Runs

(Barrels)

Year	East Coast	Appalachian	Indiana-Illinois	Oklahoma-Kansas	Inland Texas	Inland La. Ark.	Gulf Texas	Gulf Louisiana	Rocky Mountain	California	UNITED STATES
1924	369,404	59,994	154,096	217,762	84,673	34,598	256,921	100,421	73,052	407,869	1,758,795
1925	352,030	68,817	183,997	267,430	98,512	44,491	296,781	139,063	71,682	504,375	2,027,178
1926	357,926	78,088	190,978	264,400	99,131	53,444	328,567	141,110	80,014	541,312	2,134,970
1927	412,173	79,313	207,494	279,095	101,647	54,925	356,130	138,188	68,647	572,995	2,270,609
1928	465,865	91,902	270,052	304,117	131,296	61,923	376,999	144,412	71,183	575,783	2,493,617
1929	472,422	92,608	302,326	316,299	159,762	67,882	420,219	138,770	69,707	666,055	2,706,050
Month											
Jan. 1929	453,065	92,839	277,774	294,710	138,355	61,193	384,387	149,903	68,839	621,677	2,542,742
Feb.	456,357	86,322	276,929	289,321	150,643	66,929	416,071	152,214	67,179	610,571	2,572,536
Mar.	448,357	89,258	272,323	299,936	151,000	72,032	414,290	150,548	70,097	633,194	2,603,484
April	459,267	97,267	291,100	317,967	167,467	71,500	413,733	146,333	72,700	644,633	2,681,967
May	477,677	98,065	297,613	322,774	181,839	70,968	415,290	145,484	72,935	640,581	2,723,226
June	510,000	102,733	315,467	330,133	174,933	71,067	417,933	134,900	74,067	682,100	2,813,333
July	458,452	95,161	317,161	325,258	170,161	63,323	413,742	124,484	74,710	729,129	2,771,581
Aug.	491,742	89,258	334,000	332,839	164,774	66,290	404,387	131,097	72,678	710,774	2,797,839
Sept.	485,800	92,367	318,667	328,500	158,667	77,100	444,266	127,567	71,700	698,666	2,803,300
Oct.	482,290	96,065	317,323	321,355	162,871	71,322	461,677	136,839	69,000	732,548	2,851,290
Nov.	485,800	88,300	308,800	322,967	154,367	63,867	433,667	133,833	62,300	648,133	2,702,034
Dec.	459,903	83,387	297,097	308,322	141,710	59,290	423,710	132,935	60,097	635,581	2,602,032
Jan. 1930	470,613	86,613	304,161	299,032	157,194	65,129	436,613	117,097	56,968	592,484	2,585,904
Per cent change from previous month	+ 2.33	+ 3.87	+ 2.38	— 3.01	+10.93	+ 9.85	+ 3.05	—11.91	— 5.21	— 6.78	— 0.62
Per cent change from Jan., 1929	+ 3.87	— 6.71	+ 9.50	+ 1.45	+13.62	+ 6.43	+13.59	—21.88	—17.24	— 4.70	+ 1.70

crease of 18.52 per cent in exports, so that total demand was only 3.59 per cent under December and stocks were cut 468,000 barrels to 8,571,000 barrels. A year ago kerosene stocks stood at 8,865,000 barrels, about 300,000 barrels above the present level.

Lubricating Oils

The usual slump in demand for lubricating oils took place in January, bringing domestic demand down 13,000 barrels daily average under December to only 42,000 barrels per day. In January last year domestic demand was 49,000 barrels per day, 7000 barrels above this year.

Exports of lubes averaged 29,000 barrels daily, the same as in December but 7000 barrels below January, 1929. Total lube demand thus was 71,000 barrels daily average, as compared with 84,000 barrels in December and 85,000 barrels in the previous January.

While demand was being lowered refiners increased their output 4000 barrels daily average to 93,000 barrels per day. There was thus an increase in stocks of 22,000 barrels daily or 687,000 barrels. Total stocks Jan. 31 were 8,956,000 barrels. A year ago stocks stood at 8,649,000 barrels.

Paraffin Wax

Export demand for wax was much more satisfactory in January, jumping about 200,000 pounds over December and 140,000 pounds over the previous January to 1,043,000 pounds. Domestic demand, however, dropped to the very low figure of 129,000 pounds from 780,000 pounds in December and 665,000 pounds in January, 1929. Stocks increased 18,259,000 pounds in the month to 206,249,000 pounds. A year ago stocks were only 123,521,000 pounds.

Heavy Oils

The January government report was the first to separate gas oil and distillate fuels from residual fuel oils in production and stocks. The report showed a production of 6,707,000 barrels of overhead fuels and stocks of 14,911,000 barrels at the close of the month.

Residual fuel production was shown to be 26,506,000 barrels in January. Stocks east of California were 20,962,000 barrels on Jan. 31.

U. S. Natural Gasoline Supply and Demand

(Barrels)

Year	Daily Avg. Production	Daily Avg. Shipments	Stocks
1924	.....	.....	302,380
1925	72,074	45,883	328,571
1926	88,095	88,258	454,762
1927	104,762	105,147	733,333
1928	116,667	115,990	607,143
1929	142,857	143,140	603,857
Month			
Jan. 1929	128,571	124,194	741,429
Feb.	133,095	130,336	820,595
Mar.	139,524	133,843	995,286
Apr.	142,143	136,449	1,166,095
May	140,097	132,855	1,390,452
June	141,667	142,806	1,356,262
July	142,484	148,940	1,155,786
Aug.	145,387	153,855	893,429
Sept.	152,467	160,208	661,000
Oct.	158,452	163,958	490,214
Nov.	150,133	149,370	513,881
Dec.	143,779	140,876	603,857
Jan. 1930	142,243	142,005	611,214
Per cent change from prev. month	—1.07	+0.80	+1.22
Per cent change from Jan. 1929	+10.63	+14.34	—13.52

U. S. Kerosene Supply and Demand

(All figures in thousands of barrels)

Year	Daily Avg. Production	Total Imports (Bbls.)	Daily Average: Total New Supply	Daily Average: Domestic Shipments	Daily Average: Exports	Daily Average: Total Demand	Total Stocks End of Period
1924	164	27	164	100	60	160	8,594
1925	163	52	163	110	58	168	7,121
1926	169	203	169	104	61	165	8,575
1927	154	151	154	102	54	156	7,715
1928	162	552	163	99	60	159	9,001
1929	157	621	158	102	55	157	9,039
Month							
Jan. 1929	152	1,226	153	95	62	157	8,865
Feb.	158	714	159	126	57	183	8,210
Mar.	146	161	146	96	61	157	7,855
Apr.	148	700	149	105	55	160	7,497
May	158	194	158	103	47	150	7,742
June	164	500	165	85	60	145	8,348
July	142	484	142	87	42	129	8,797
Aug.	165	774	166	103	66	169	8,689
Sept.	156	....	156	113	37	150	8,864
Oct.	174	323	174	101	73	174	8,865
Nov.	161	1,133	162	101	44	145	9,366
Dec.	156	645	157	113	54	167	9,039
Jan. 1930	145	290	145	97	64	161	8,571
Per cent change from prev. mo.	—7.05	—55.04	— 7.64	—14.16	+18.52	— 3.59	— 5.46
Per cent change from Jan. 1929	— 4.61	—76.35	— 5.23	+ 2.11	+ 3.23	+ 2.55	— 3.32

U. S. Lubricating Supply and Demand

(All figures in thousands of barrels)

Year	Production	Imports (Bbls.)	Daily Average: Total New Supply	Daily Average: Domestic Shipments	Daily Average: Exports	Daily Average: Total Demand	Total Stocks End of Period
1924	75	30	75	50	25	75	6,420
1925	85	101	85	56	27	83	7,253
1926	88	90	88	62	26	88	7,576
1927	87	22	87	59	27	86	7,860
1928	95	36	95	63	30	93	8,340
1929	94	107	94	64	30	94	8,269
Month							
Jan. 1929	95	33	95	49	36	85	8,649
Feb.	89	143	89	63	31	94	8,534
Mar.	97	65	97	51	34	85	8,853
Apr.	97	100	97	81	26	107	8,527
May	97	129	97	75	27	102	8,370
June	98	200	98	82	33	115	7,869
July	95	129	95	70	36	106	7,524
Aug.	101	161	101	73	30	103	7,478
Sept.	95	100	95	68	23	91	7,589
Oct.	93	65	93	44	35	79	8,021
Nov.	85	100	85	62	20	82	8,117
Dec.	89	65	89	55	29	84	8,269
Jan. 1930	93	97	93	42	29	71	8,956
Per cent change from prev. mo.	+ 4.49	+49.23	+ 4.49	—23.64	.....	—15.48	+ 8.31
Per cent change from Jan., 1929	— 2.11	+193.94	— 2.11	—14.29	—19.44	—16.47	+ 3.55

U. S. Wax Supply and Demand

(All figures in thousands of pounds)

Year	Production	Imports	Daily Average: Total New Supply	Daily Average: Domestic Shipments	Daily Average: Exports	Daily Average: Total Demand	Total Stocks End of Period
1924	1,411	35	1,446	605	1,046	1,651	89,706
1925	1,618	40	1,658	669	916	1,585	116,391
1926	1,769	27	1,796	688	919	1,607	185,331
1927	1,601	56	1,657	774	933	1,767	167,214
1928	1,722	68	1,790	826	1,073	1,899	110,344
1929	1,726	111	1,837	752	873	1,625	187,990
Month							
Jan. 1929	1,900	96	1,996	665	905	1,570	123,521
Feb.	1,787	111	1,898	402	906	1,308	140,053
Mar.	1,818	83	1,901	596	714	1,310	158,404
Apr.	1,933	89	2,022	857	755	1,612	170,687
May	1,735	89	1,824	949	602	1,551	179,139
June	1,757	102	1,859	706	833	1,539	188,764
July	1,489	149	1,638	768	789	1,557	191,298
Aug.	1,722	175	1,897	1,004	907	1,911	190,878
Sept.	1,484	97	1,581	753	1,066	1,819	183,714
Oct.	1,819	127	1,946	513	1,259	1,772	189,094
Nov.	1,693	87	1,780	1,008	890	1,898	185,559
Dec.	1,584	125	1,709	780	850	1,630	187,990
Jan. 1930	1,689	72	1,761	129	1,043	1,172	206,249
Per cent change from prev. mo.	+ 6.63	—42.40	+ 3.04	—83.46	+22.71	—28.10	+ 9.71
Per cent change from Jan. 1929	—11.10	—25.00	—11.77	—80.60	+15.25	—25.35	+66.97

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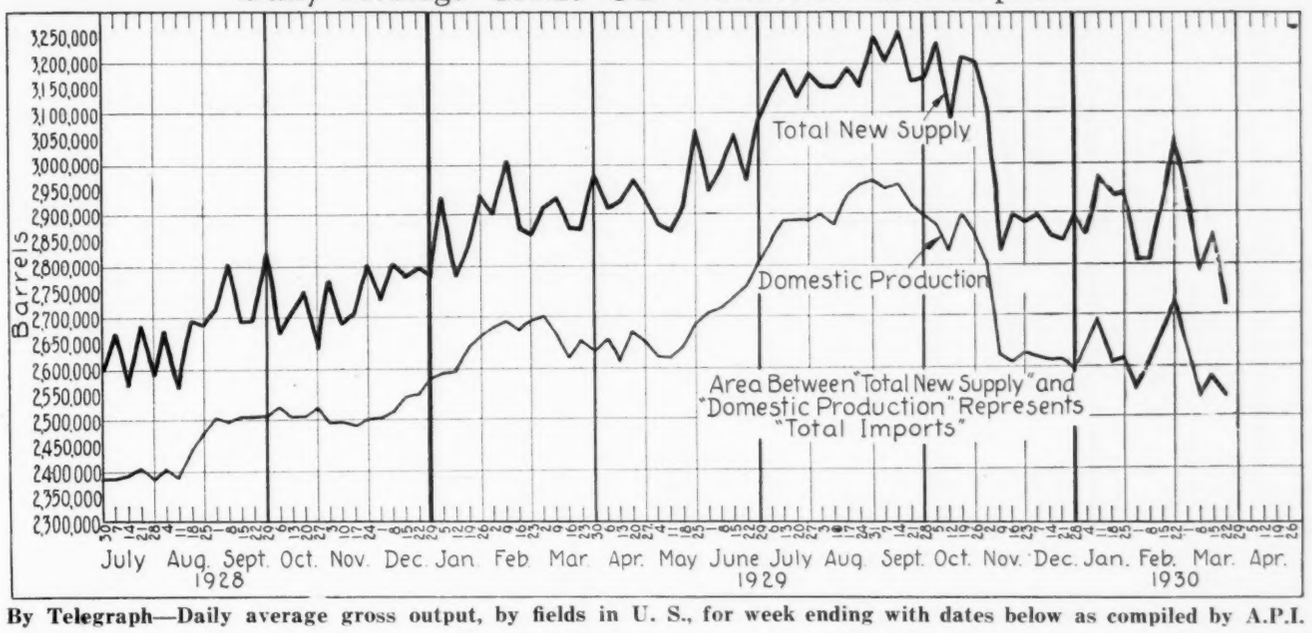
Daily Average Crude Oil Production and Imports



By Telegraph—Daily average gross output, by fields in U. S., for week ending with dates below as compiled by A.P.I.

PRODUCTION SUMMARY	March 22	March 15
Production east of Rockies	1,886,500	1,931,600
Decrease		45,100
Total production in U. S.	2,535,900	2,583,200
Decrease		47,300
Crude oil imports	176,570	284,000
Decrease		107,430
Total crude supply	2,712,470	2,867,200
Decrease		154,730

OKLAHOMA	Mar. 22	Mar. 15
Allen Dome	20,150	19,900
Asher	2,400	2,400
Blackwell	3,350	3,350
Bowlegs	22,050	28,600
Braman	3,550	3,550
Bristow-Slick	16,250	16,300
Burbank	16,500	16,550
Carr City	9,650	9,950
Cromwell	7,400	7,300
Cushing	14,350	14,350
Davenport	1,150	1,150
Duncan District	7,400	7,650
Earlsboro	37,500	40,450
East Earlsboro	41,050	41,600
Fox	1,250	1,300
Garber	4,500	4,050
Graham	3,500	3,800
Healdton	12,000	12,000
Hewitt	7,250	7,550
Hubbard	1,600	1,600
Konawa	8,850	8,500
Little River	42,300	44,800
Little River, East	17,850	15,150
Logan County	9,000	9,100
Maud	6,150	6,150
Mission	14,250	12,700
North Okmulgee	11,250	11,300
Oklahoma City	64,050	85,100
Osage (Outside Burbank)	26,350	26,350
Papoose	2,800	2,950
Pearson	650	750
Sasakwa	10,200	8,400
St. Louis	40,400	43,650
Scholem-Alechem	13,400	13,800
Searight	8,350	8,600
Seminole	20,550	25,700
Seminole, East	3,100	4,100
South Okmulgee	6,250	6,250
Thomas	650	650
Tonkawa	7,950	8,050
Wewoka	3,950	3,950
Yale-Jennings	9,650	8,300
Others	55,400	54,400
Total, Oklahoma	616,200	652,100
Decrease		35,900

KANSAS	Mar. 22	Mar. 15
Augusta-Fox Bush	2,900	2,900
Churchill	4,200	4,500
El Dorado-Towanda	13,500	13,400
Florence-Covert	800	850
Greenwood County	19,000	19,400
Oxford	2,800	2,900
Peabody-Elbing	3,350	3,150
Rainbow Bend	1,100	1,100
Russell	3,450	3,450
Sedgwick County	21,800	21,700
Voshell	10,250	7,850
Others	34,000	35,000
Total, Kansas	117,150	116,200
Increase		950

NORTH LOUISIANA	Mar. 22	Mar. 15
Bellevue	650	700
Caddo, light	9,850	10,450
Caddo, heavy	2,700	2,650
Cotton Valley	2,350	2,500
De Soto and Red River	3,050	3,050
Elm Grove	450	450
Haynesville	4,600	4,650
Homer	3,600	3,600
Pleasant Hill	750	700
Urania	5,400	5,350
Zwolle	2,550	4,850
Others	2,700	3,050
Total, N. Louisiana	38,650	42,000
Decrease		3,350

ARKANSAS	Mar. 22	Mar. 15
Champagnolle	4,950	4,950
El Dorado	4,000	4,000
Lisbon	1,050	1,050
Nevada	1,050	1,100
Smackover, light	5,350	5,300
Smackover, heavy	41,150	41,700
Stephens	900	900
Others	250	250
Total, Arkansas	58,700	59,250
Decrease		550

TEXAS (Outside Gulf Coast)		
Panhandle District	Mar. 22	Mar. 15
Carson County	9,300	9,200
Gray County	59,600	57,800
Hutchinson County	23,500	23,350
Wheeler County	550	600
Others	600	650
Total, Panhandle Texas	93,550	91,600
Increase		1,950
North Texas		
Archer County	17,650	17,850
Burkburnett	8,100	8,150
Electra	11,400	11,500
Iowa Park and K. M. A.	5,150	5,300
Montague-Cooke	10,500	10,950
Wilbarger	25,950	23,900
Others	2,050	2,500
Total, North Texas	80,800	80,150
Increase		650
West Central Texas		
Brown County	7,800	7,850
Callahan County	3,700	3,700
Coleman County	4,800	4,900
Eastland-Desdemona	5,550	4,700
Jack County	4,100	4,300
Palo Pinto County	700	750
Shackleford County	6,600	6,600
Stephens County	5,850	5,850
Throckmorton County	850	900
Young County	9,900	10,100
Others	1,450	1,450
Total, West Central Texas	51,300	51,100
Increase		200
West Texas		
Crane and Upton Counties	45,200	45,400
Crockett County	2,000	2,000
Ector	5,000	.....
Howard County	38,500	38,650
Jones County	2,100	2,100
Mitchell and Scurry Counties	2,100	2,150
Reagan County	16,700	16,850
Winkler County	88,000	88,900
Yates	126,000	135,950
Balance Pecos County	5,700	5,850
Others	2,700	6,100
Total, West Texas	334,000	343,950
Decrease		9,950
East Central Texas	Mar. 22	Mar. 15
Boggy Creek	3,500	3,550
Corsicana-Powell	6,000	6,100
Currie	300	350
Mexia	4,150	4,250
Nigger Creek	200	200
Richland	250	250
Van Zandt	9,900	9,850
Wortham	900	900
Total, East Central Texas	25,200	25,450
Decrease		250
Southwest Texas		
Dale	300	300
Darst Creek	15,500	15,500
Laredo District	8,700	8,800
Luling	10,100	10,200
Lytton Springs	900	900
Salt Flat	22,500	23,600
Somerset	1,300	1,300
Others	2,300	2,400
Total, Southwest Texas	61,600	63,000
Decrease		1,400
Total, Texas (Outside Gulf Coast)	646,450	655,250
Decrease		8,800

GULF COAST		
Coastal Texas	Mar. 22	Mar. 15
Barbers Hill	27,800	23,000
Batson	1,200	1,200
Big Creek	2,900	3,050
Blue Ridge	1,900	1,900
Boling	1,000	1,000
Damon Mound	500	500
Fannett	1,450	1,250
Goose Creek	4,900	5,150
Hull	8,700	9,250
Humble	19,200	20,400
North Dayton	1,000	900
Orange County	2,350	2,450
Pierce Junction	10,300	11,750
Port Neches	2,200	2,550
Raccoon Bend	10,200	10,100
Refugio County	39,200	38,200
Saratoga	1,050	1,050
Somerville	1,550	1,550
Sour Lake	2,250	2,350
South Liberty	5,100	4,950
Spindletop	15,500	15,750
Sugarland	10,600	10,300
West Columbia	6,000	6,250
Others	7,100	5,350
Total, Coastal Texas	183,950	180,200
Increase		3,750
Coastal Louisiana	Mar. 22	Mar. 15
East Hackberry	1,200	1,200
Old Hackberry	1,200	1,200
Edgerly	500	400
Evangeline	1,100	1,000
Lockport	2,800	2,850
Port Barre	1,750	1,750
Sorrento Dome	100	100
Sulphur Dome	3,500	5,350
Vinton	4,000	4,000
Others	2,950	1,800
Total, Coastal Louisiana	19,100	19,650
Decrease		550
Total, Gulf Coast	203,050	199,850
Increase		3,200

ROCKY MOUNTAIN		
Wyoming	Mar. 22	Mar. 15
Big Muddy	2,100	2,100
Elk Basin	700	750
Grass Creek	2,050	2,150
Labarge	2,250	2,300
Lance Creek	200	150
Lost Soldier	3,300	3,300
Oregon Basin	4,850	4,300
Rock River	2,300	2,300
Salt Creek	29,650	30,700
Others	2,950	2,550
Total, Wyoming	50,350	50,600
Decrease		250
Montana		
Cat Creek	1,200	1,200
Pondera	2,050	1,700
Sunburst	4,950	4,950
Others	50	50
Total, Montana	8,250	7,900
Increase		350
Colorado		
Florence	600	600
Fort Collins	1,450	1,550
Moffat (Craig)	1,000	1,100
Others	1,350	1,500
Total, Colorado	4,400	4,750
Decrease		350
New Mexico		
Artesia	800	700
Balance Lea and Eddy Counties	8,000	7,900
Hogback	450	450
Rattlesnake	1,100	550
Table Mesa	100	100
Others	950	950
Total, New Mexico	11,400	10,650
Increase		750
Total, Rocky Mountain	74,400	73,900
Increase		500

CALIFORNIA	Mar. 22	Mar. 15
Dominguez	8,500	9,000
Elwood-Goleta	32,200	37,200
Huntington Beach	29,500	28,500
Inglewood	17,700	17,800
Kettleman Hills	12,700	12,700
Long Beach	104,000	103,000
Midway-Sunset	72,500	72,500
Santa Fe Springs	152,400	157,700
Seal Beach	24,500	25,000
Ventura Avenue	45,400	45,200
Others	143,000	143,000
Total, California	649,400	651,600
Decrease		2,200
EASTERN		
(Not including Michigan)	120,250	120,500
Decrease		250
MICHIGAN		
Mt. Pleasant	6,350	7,200
Muskegon	5,100	5,150
Saginaw	200	200
Total, Michigan	11,650	12,550
Decrease		900

Compilation Of Mid-Continent Refinery Operations

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Mid-Continent Refinery Operations Week Ended March 21 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	West Texas	North La.-Ark.	Total Week Ended Mar. 21
Plants Reporting	12	29	25	15	12	93
Da. Av. Cap. (Bbls.)	94,500	161,700	106,100	82,000	77,000	521,300
Da. Cracking Capacity	30,700	52,600	17,200	5,000	22,700	128,200
Da. Av. Crude Runs	69,700 + 1.8	109,641 — 0.7	66,722 + 25.9	44,131 + 23.3	61,872 — 2.3	352,066 + 6.1
Da. Av. Other Oils	7,069 + 13.6	7,291 +120.1	12,115 + 75.2	2,033 +111.8	2,692 + 48.2	31,200 + 62.3
GASOLINE—Gallons						
Stocks, Mar. 14	27,867,000	72,969,000	26,084,000	10,821,000	13,166,000	150,907,000
Prod. 3-14 to 3-21	12,090,000 + 13.3	17,695,000 + 8.2	8,175,000 + 18.3	3,884,000 — 2.0	5,635,000 — 3.7	47,479,000 + 8.5
Ship. 3-14 to 3-21	12,211,000 + 4.2	18,211,000 + 4.8	11,289,000 + 50.6	3,750,000 — 61.8	5,032,000 — 1.5	50,493,000 — 2.0
Stocks, Mar. 21	27,746,000 — 0.4	72,453,000 — 0.7	22,978,000 — 11.9	10,955,000 + 1.2	13,769,000 + 4.6	147,901,000 — 2.0
Ratio Sales to Prod.	101.0%	102.9%	138.1%	96.6%	89.3%	106.3%
KEROSENE—Gallons						
Stocks, Mar. 14	8,635,000	6,460,000	2,529,000	19,000	2,982,000	20,625,000
Prod. 3-14 to 3-21	2,071,000 + 14.2	2,534,000 + 4.2	1,643,000 + 11.6	22,000	396,000 — 49.5	6,666,000 + 2.5
Ship. 3-14 to 3-21	2,615,000 + 4.8	2,808,000 + 0.4	1,938,000 + 33.9	9,000 — 60.9	658,000 — 15.6	8,028,000 + 6.4
Stocks, Mar. 21	8,091,000 — 6.3	6,186,000 — 4.2	2,234,000 — 11.7	32,000 + 68.4	2,720,000 — 8.8	19,263,000 — 6.6
Ratio Sales to Prod.	126.3%	110.8%	118.0%	40.9%	166.2%	120.4%
STOVE DISTILLATE—Gallons						
Stocks, Mar. 14	2,679,000	3,780,000	680,000	240,000	79,000	7,458,000
Prod. 3-14 to 3-21	439,000 — 43.2	483,000 — 25.2	146,000 + 46.0	110,000 + 3.7	170,000 + 20.6	1,348,000 — 23.7
Ship. 3-14 to 3-21	332,000 — 43.8	884,000 + 15.7	270,000 + 12.5	133,000 + 51.1	170,000 + 11.8	1,789,000 — 1.6
Stocks, Mar. 21	2,786,000 + 4.0	3,379,000 — 10.5	556,000 — 18.2	217,000 — 9.6	79,000	7,017,000 — 5.9
Ratio Sales to Prod.	75.6%	183.0%	184.9%	120.9%	100.0%	132.7%
GAS OIL—Gallons						
Stocks, Mar. 14	4,532,000	38,875,000	1,640,000	4,937,000	6,649,000	56,633,000
Prod. 3-14 to 3-21	1,445,000 + 5.1	1,886,000 — 23.5	2,557,000 +311.8	631,000 + 37.8	2,863,000 + 29.0	9,382,000 + 31.4
Ship. 3-14 to 3-21	970,000 — 12.5	956,000 — 37.6	1,321,000 +109.7	662,000 + 45.2	1,862,000 — 9.5	5,771,000 — 0.2
Stocks, Mar. 21	5,007,000 + 10.5	39,805,000 + 2.4	2,876,000 + 75.4	4,906,000 — 0.6	7,650,000 + 15.1	60,244,000 + 6.4
Ratio Sales to Prod.	67.1%	50.7%	51.7%	104.9%	65.0%	61.5%
FUEL OIL—Gallons						
Stocks, Mar. 14	13,891,000	29,577,000	65,953,000	13,079,000	25,139,000	147,639,000
Prod. 3-14 to 3-21	5,578,000 — 3.6	6,767,000 — 3.5	8,945,000 + 21.7	6,719,000 + 29.6	5,916,000 + 12.5	33,925,000 +10.9
Ship. 3-14 to 3-21	4,367,000 — 16.6	6,468,000 — 0.5	10,584,000 + 38.1	7,469,000 + 21.8	5,604,000 — 9.8	34,492,000 + 8.6
Stocks, Mar. 21	15,102,000 + 8.7	29,876,000 + 1.0	64,314,000 — 2.5	12,329,000 — 5.7	25,451,000 + 1.2	147,072,000 — 0.4
Ratio Sales to Prod.	78.3%	95.6%	118.3%	111.2%	94.7%	101.7%

Gasoline Produced by Various Methods, Week Ended March 21

	Kansas	% of Total	Oklahoma	% of Total	North & Cent. Texas	% of Total	West Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	7,393,000	61.1	11,670,000	66.0	6,064,000	74.2	3,428,000	88.3	2,098,000	37.2	30,653,000	64.6
Cracked	3,819,000	31.6	4,669,000	26.4	1,332,000	16.3	176,000	4.5	2,887,000	51.2	12,883,000	27.1
Natural	878,000	7.3	1,356,000	7.6	779,000	9.5	280,000	7.2	650,000	11.6	3,943,000	8.3
Total	12,090,000		17,695,000		8,175,000		3,884,000		5,635,000		47,479,000	

+ or — columns are % change over previous week.

Gasoline Stocks Reduced 3,000,000 Gallons

Staff Special—By Telegraph
TULSA, March 25

GASOLINE stocks at the Mid-Continent refineries that report their operating statistics weekly to NATIONAL PETROLEUM NEWS, were reduced 3,000,000 gallons in the week ended March 21. Reductions were made in Kansas, Oklahoma and North Texas.

Stocks were lowered although runs of crude oil to stills were increased 18,000 barrels daily average, and gasoline production was increased 3,700,000 gallons over production of the week before.

Gasoline shipments were smaller than in the week before but remained above the 50,000,000-gallon mark.

Kerosene production was increased a little but shipments were 400,000 gallons larger than in the preceding week and stocks were reduced 360,000 gallons. All but the West Texas dis-

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended March 21. Change in stocks figures from Feb. 21.

	Gallons
GASOLINE	
Production	183,001,000
Shipments	190,265,000
Net change in stocks	—7,264,000
Ratio sales to production	104.0%
KEROSENE	
Production	25,814,000
Shipments	28,903,000
Net change in stocks	—3,089,000
Ratio sales to production	112.0%
STOVE DISTILLATE	
Production	6,115,000
Shipments	6,980,000
Net change in stocks	—865,000
Ratio sales to production	114.1%
GAS OIL	
Production	31,659,000
Shipments	23,588,000
Net change in stocks	+8,071,000
Ratio sales to production	74.5+
FUEL OIL	
Production	127,604,000
Shipments	124,270,000
Net change in stocks	+3,334,000
Ratio sales to production	97.4%

trict, drew on stocks. Little kerosene is made in West Texas.

Distillate stocks were reduced slightly, principally because of smaller output. Gas oil stocks increased 3,600,000 gallons. Fuel oil stocks were reduced 560,000 gallons because of drafts in North and West Texas.

New England Oil Men Plan Golf Meets

NEW YORK, March 13.—Plans for summer meetings which will be similar to those of the past were made by the Independent Oil Men's Assn., of New England, meeting at the University club in Boston, March 12. These meetings include golf, luncheons and business sessions at various New England country clubs.

President W. C. O'Meara announced that the first meeting will be held on April 9, probably at the Wollaston country club. This course is kept open all winter and does not offer the numerous spring hazards that most courses do because of its drainage. The association expects to have some kind of competition this summer as it did last. It is probable a cup will be given the winner of a final match after a series of monthly eliminations have been played. Last season this cup was donated by the Richfield Oil Corp., of New York.

Ten members of the association have been selected to sponsor these meetings. The first one will be in charge of Ray Adams, of Providence, Pennsylvania Petroleum Products Co., Inc., and E. W. Bartram, Boston, of the Bennett Pump Corp.

R. W. Bowdoin, of Boston, addressed the last meeting urging cooperation among members of the association and pointing out the value of organized effort. Mr. Bowdoin is secretary of the Massachusetts division of the New England Council, an organization formed to promote the welfare of New England industries.

CLEVELAND—Gordon Johnston, who has been in the service station equipment business for many years, was recently appointed director of sales for the United States Air Compressor Co., Cleveland. A. F. Jordan, who has been district manager and assistant sales manager for several years with the company, has been appointed sales manager, according to W. C. Smith, vice president and secretary.

Richfield Buys Another Marketer

NEW YORK, March 22.—Richfield Oil Corp. of New York has bought the marketing properties of the Clifton F. Williams & Co., Schenectady, N. Y. Gasoline gallonage of the Williams company approximated 2,000,000 gallons in 1929, it is reported. The company also distributes motor and fuel oils.

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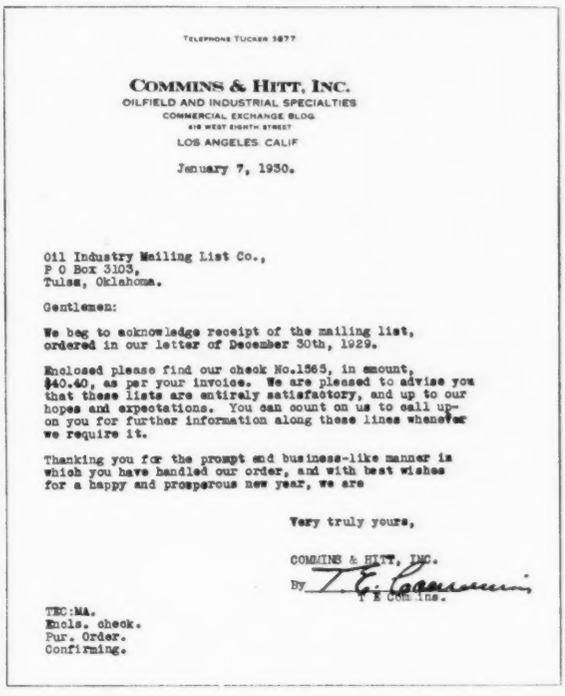

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" 4A Pipe Line Companies (Natural Gas Pipe Lines)
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Refinery - Tank Wagon Markets

National Petroleum News

Midwest Gasoline Extends Recovery Seaboard Markets Unsettled

CLEVELAND, March 25

THE recovery in middle western gasoline markets made further progress in the week ended March 22. Motor fuel prices on both the Atlantic and Pacific seaboards backed and filled most of the week. What little change there was in the two latter areas, however, might be said to have been for the better.

Heavy burning oils continued to diminish in importance as market factors in practically all districts, while lubricating oils came to the foreground as large distributing companies increased their preparations for the coming season.

Improvement in Mid-Continent gasoline markets was noted largely from the low ends of price ranges. Oklahoma U. S. Motor moved up 0.125 cent to 6.25 cents and reports from the Chicago district indicated that 6.125 cents was the low price at which this gasoline could be purchased from other refining areas on a Group 3 basis.

More refiners on the east coast advanced their prices for U. S. Motor gasoline to 8.50 cents, f.o.b. New York harbor plants but at the same time several large market factors continued to offer material at 7.75 cents, the previous low of the market. Some of them indicated they would not raise their prices from this level until retail markets took a turn for the better.

Retail price cutting on the Pacific coast became more prevalent last week and this tended to halt the recovery in local tank car markets which got under way following the advance in California crude the week before.

There were signs of easing in the intercoastal tanker market in the opinion of important California market observers, however. This was hailed by them as the most favorable factor toward the revival of active buying in cargo lots from the east coast, something that has been lacking for several months past and which probably has accounted more than any one other factor for the rapid increase in California gasoline stocks.

Western Pennsylvania gasolines lost the ground they had gained in the week ended March 15. U. S. Motor moved back to 7.25 cents after having enjoyed considerable play at prices 0.125 to 0.25-cent higher.

Further recessions in fuel oil prices were noted in virtually every district as the domestic burning oil season began to wane. Industrial activity also has been slow in getting under way since the first of the year with the result that the oil industry has not enjoyed normal demand from the industrial consumer.

Demand for wax both from domestic and foreign buyers failed to pick up appreciably and prices for scale and fully refined grades were down 0.125 to 0.25-cent in the majority of markets.

April Gasoline Active in Chicago

Staff Special

CHICAGO, March 22

INTEREST among the Chicago trade on March 22 was centered mainly on U. S. Motor gasoline for shipment over April. Some difference of opinion was heard regarding selling prices for shipment over this period, but practically all sellers believed the low of the present price range would move upward at least 0.25 cent.

Most carlot marketers and jobbers reported they were having a hard time getting refiners to sell gasoline for April shipment. Three or four marketers reported they had purchased some U. S. Motor at 6.125 cents, f.o.b. Group 3, from a Texas refiner for shipment over this period. Several marketers said they had been unable to get any quotations on Oklahoma U. S. Motor for April at under 6.25 cents, and that the few refiners who were offering wanted at least 6.375 cents. One Chicago marketer said he was willing to sell for shipment over the first half of the month at 6.25 cents and for the last half at 6.50 cents.

Spot demand for U. S. Motor for prompt shipment was somewhat lighter last week than that experienced during the previous week, most sellers reported. This was especially true of those sellers who had advanced their prices to 6.125 and 6.25 cents. Several marketers, who continued to offer goods at 6 cents, reported they had enjoyed a good demand all week. Refiners generally reported a good demand from their contract customers.

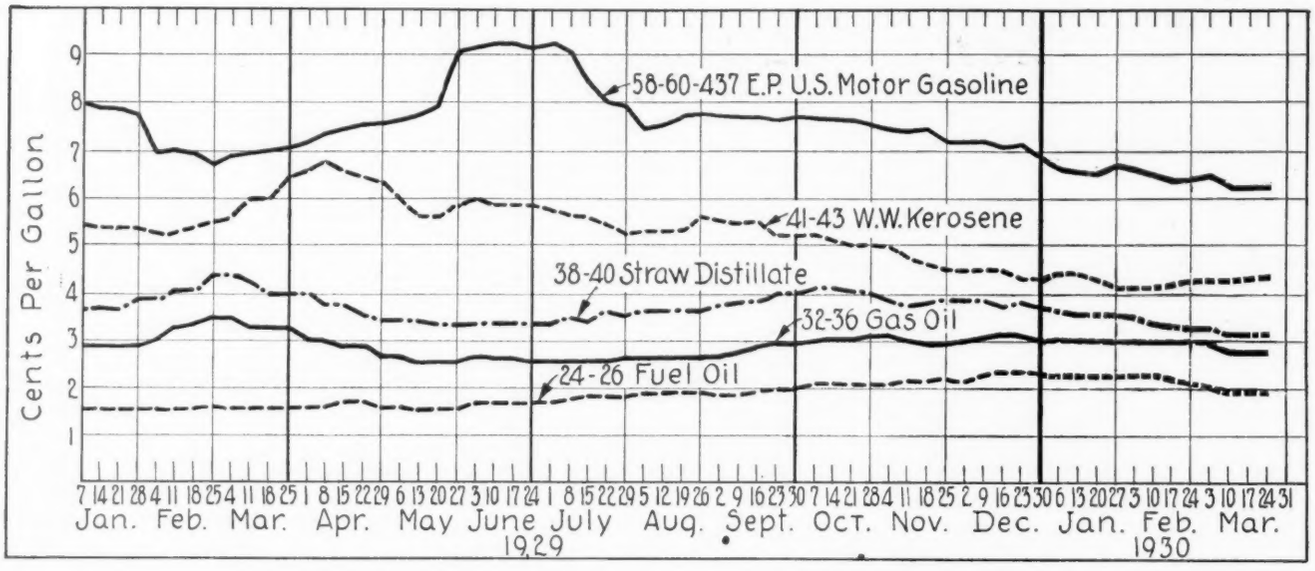
Most of the Chicago marketers advanced their sales prices on U. S. Motor gasoline to 6.125 and 6.25 cents sometime during the past week. However, enough sellers continued to move goods at 6 cents to establish this price as part of the range shown in the Chicago resale market of PLATT'S OILGRAM on March 22. Several jobbers said they were still able to buy an occasional car of U. S. Motor at 5.875 cents for prompt shipment. In most cases, they reported, the seller was "long" some gasoline on which he needed immediate instructions.

Carlot marketers generally reported their buying prices, in both Oklahoma and Texas, at 6 or 6.125 cents for prompt shipment. They said only an occasional car could be picked up at 5.875 cents.

Demand for 60-62, 437 and 400 end point gasolines was fairly active last week and prices of these two grades were advanced 0.125 to 0.25 cent by most sellers. No changes were reported in prices of 64-66, 375 e.p. or 68-70, 350-360 e.p. gasolines.

Most sellers reported their demand for kerosene was fairly good and that

Current Prices of Principal Mid-Continent Refined Products


58-60-437 E.P. U.S. Motor Gasoline
41-43 W.W. Kerosene
38-40 Straw Distillate
32-36 Gas Oil
24-26 Fuel Oil
Cents Per Gallon
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1929
1930

Prices shown are in Group 3 basis and extended to date shown in Refinery Market Tables Section of this issu

they expected higher prices to prevail on this commodity in April. One or two marketers were "long" some 41-43 w.w. which they were offering at 4.125 cents, but the bulk of sales reported were at 4.25 to 4.375 cents. Buyers reported very little 42-44 w.w. kerosene available under 4.50 cents.

Furnace oils continued in the doldrums last week, as far as the spot tank car market was concerned, although several sellers said their contract customers were ordering out a fair quantity of goods. Prices of distillate and gas oils generally were 0.125 to 0.25 cent lower during the week.

Fuel oils were freely offered last week at prices from 2.50 to 5 cents a barrel lower. Most sellers reported only a fair demand from the jobbing trade, although several said that industrial buying was somewhat improved. A few sales of 18-22 zero, high sulfur fuel oil were reported at $0.65, but the bulk of goods moved at $0.675 to $0.725.

Rather frequent precipitation is likely over most of the Standard of Indiana territory next week, says the Chicago weather bureau. Temperatures probably will be normal or above during the first part of the week, becoming colder toward the close.

Gulf Coastal Water Shipments—February Compared with January

(All figures in Barrels of 42 Gallons)

Company—Port	Coastwise Refined January	Coastwise Refined February	Export Refined January	Export Refined February
Standard of Louisiana, Baton Rouge	1,307,606.00	1,001,145.00	864,453.00	616,350.00
The Texas Company, Port Arthur	1,061,505.00	912,664.00	430,136.00	362,696.00
Gulf Refining Co., Port Arthur	2,765,394.44	2,451,655.92	96,925.37	46,347.92
Magnolia Petroleum Co., Beaumont	1,432,234.97	1,568,544.66(a)	.....	.....
Humble Oil & Refg. Co., Baytown	1,281,376.10	1,686,698.45	1,957,804.18	1,982,910.20
Atlantic O. Prod. Co., Atreco	162,854.90	105,283.80	.....	.....
Pure Oil Company, Smiths Bluff	446,960.35	478,664.55	.....	.....
TOTALS	8,457,931.76	8,204,656.38	3,349,318.55	3,008,304.12

	Coastwise Crude January	Coastwise Crude February	Export Crude January	Export Crude February
Standard of Louisiana, Baton Rouge	339,192.00	261,332.00	53,404.00	106,594.00
The Texas Company, Port Arthur	.....	.....	.....	.....
Gulf Refining Co., Port Arthur	181,313.13	309,983.62	.....	.....
Magnolia Petroleum Co., Beaumont	858,583.45	774,408.60(a)	.....	.....
Humble Oil & Refg. Co.:				
Texas City	673,099.00	449,104.00	.....	.....
Ingleside	209,330.00	99,534.00	.....	.....
Baytown	433,627.00	326,704.00	.....	.....
Harbor Island	1,659,180.00	1,845,269.00	.....	.....
Neches	.....	88,636.00	.....	.....
Atlantic Oil Producing Co.:				
Atreco	811,453.44	975,336.93	.....	.....
Beaumont	128,016.57	184,268.51	.....	.....
Pure Oil Company, Smiths Bluff	336,584.05	266,082.87	.....	.....
Sun Oil Company, Sabine Pass	668,244.00	569,890.00	.....	.....
TOTALS	6,298,622.64	6,150,539.53	53,404.00	106,594.00

(a)—Magnolia Petroleum Company makes no distinction in reports between coastwise and export shipments.

Shipments From Southern California

LOS ANGELES, March 17.—Shipments of bulk petroleum from Southern California ports for week ending March 15, were as follows:

Destination	Crude	Gasoline	Diesel	Kerosene	Gas-Oil	Fuel	Total
Pacific for.	125,100	66,704	60,871	7,615	.....	617,141	941,960
Atlantic dom.	.....	290,111	.....	.....	56,257	.....	346,328
Atlantic for.	.....	202,413	.....	74,681	.....	.....	277,094
Total	125,100	659,228	60,871	82,296	56,257	617,141	1,565,322

Prices 10 Years Ago
March 22, 1920

	Oklahoma	Penna.
58-60 U. S. Motor	23.75–24.00c	23.50c
80-84 Natural	17.25–17.50c	.....
Kerosene (41-43 Okla.; 47 w. w. Pa.)	12.00–12.25c	15.50–16.00c
Fuel Oil (24-26 Okla.; 38-40 Pa.)	$2.90–$3.25	14.00–14.50c
Crude (Okla. 35-35.9)	$3.50	$6.10
Chicago tank wagon		25.00c

Prices A Year Ago
March 25, 1929

	Oklahoma	Penna.
58-60 U. S. Motor	7.0490c	8.50–9.50c
Grade A Natural	8.00c	.....
Kerosene (Okla. 41-43; Pa., 47 w. w.)	6.50c	7.75–8.50c
Fuel Oil (Okla. 24-26; Pa. 36-40)	$0.675	5.00–5.25c
Crude (Okla. 35-35.9)	$1.17	$4.00
Chicago tank wagon		14.00c

Mid-Continent Refinery Markets

Gasoline Prices Continue to Advance

Staff Special
TULSA, March 22

THE improvement in the gasoline and kerosene situation in the Mid-Continent, which first made itself noticeable around the first of the month, had gained sufficient momentum to cause slight advances in prices before the end of the third week of March. Every district reported good movement of gasoline and all except the Louisiana and Arkansas districts enjoyed an excellent demand for kerosene.

Marketers buying Oklahoma gasolines reported March 20 and 21 that virtually all 58-60 U. S. Motor gasoline which had been available at 6 cents had been taken off the market, and it was almost impossible to obtain any gasoline for prompt shipment, even for resale on March 22, at less than 6.25 cents. Refiners whose gasolines fail to meet all U. S. Motor specifications were quoting 6.125 cents and up for their product. It will be recalled that during the second week of the month all the gasoline which had been quoted at under 6 cents disappeared from the market.

The advance in gasoline prices, however, was confined primarily to the U. S. Motor grade. The higher gravity gasolines showed no changes, with the exception of the 64-66, 390 e.p. gasoline, which was slightly lower. This was to be expected, however in view of the fact that the season for the high gravity gasolines is about past.

Kansas refiners on March 20 announced an advance of 0.25 cent in their quotations for U. S. Motor gasoline. All of them reported an exceptionally good demand, both on contracts and spot. One refiner reported his storage was lower than he had desired at this season, and that he had attempted to build up stocks for the summer demand but had been unsuccessful so far. He said he had bought some gasoline on the outside rather than increase his crude runs.

North Texas refiners were in a good position due to the export orders for both U. S. Motor and high gravity gasolines now on their books, and to the increased demand for the domestic grades of gasoline from the jobbing trade.

West Texas refiners were in better position, apparently, than any of the other districts. Gasolines of specification grade were comparatively scarce.

Louisiana and Arkansas refiners late in the week advanced their quotations for U. S. Motor for differential territory shipment 0.25-cent to 6.75 cents, and advanced their quotations for northern shipment from 0.125 to 0.375-cent a gallon.

Refiners in virtually every district reported increased efforts on the part of prospective buyers to obtain gasolines at a flat price for April and May delivery. One refiner in Oklahoma reported an offer of 6.50 cents for U. S. Motor. A week ago buyers offered 6.125 to 6.25 cents a gallon. There apparently was little actual business being done on this basis, the few orders placed being with some of the smaller refiners who desire to have at least a portion of their gasolines sold ahead to prevent any accumulation of stocks should the weather conditions hamper spot sales.

The kerosene demand apparently moved in on the refiners almost overnight. The buying by refiners to supply their requirements during the spring season, reported last week in these columns, continued almost unabated throughout the past week. Prices in Kansas advanced from 0.125 to 0.375 cent a gallon, while in Oklahoma the advance averaged 0.125 cent. with indications that another 0.125 cent advance would be recorded before the end of the month. More 41-43 w.w. grade was moved late in the week at 4.50 cents, while the cars at 4.25 cents were smaller in volume. Several refiners who had quoted 4.25 cents most of the week advanced to 4.375 cents, while others advanced to 4.50 cents earlier in the week.

Several Kansas refiners still sought kerosene which kept the market in excellent condition in that district. The export and increased domestic demand in north Texas gave considerable support to that market. The Louisiana refiners, however, have not fared so well. One or two of them had anticipated some export buying of 44 gravity kerosene, but since the buying had not developed in proportions which they had expected. their storage was comparatively full and they were forced to offer the kerosene last week at slightly lower prices. That situation naturally reacted on the 41-43 and 42-44 gravity kerosenes.

Natural gasolines were active most of the week and with one large company in the market for grade AA and another seeking grade BB to apply on spot orders rather than to draw

(*Continued on Page* 108)

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CHICAGO, ILL.

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Comparative Prices of 58-60 U. S. Motor Gasoline, 437 E. P., Group 3 and Point of Origin, to Jobbers Only

In Effect March 24

	Price F.O.B. Group 3		*Price F.O.B. Point of Origin*		*If for Particular Destination*
Oklahoma	6.4166	(Wt. Avg.)	6.4166	(Wt. Avg.)	
Kansas	6.50				S. O. Neb. & Indiana Territory, etc.
Kansas			No sales reported		Kansas only.
North Texas	6.25		6.125–6.375		
West Texas	6.25		6.25		
Louisiana-Arkansas	6.25				Michigan, Ohio and Indiana.
Louisiana-Arkansas			6.75		State or differential haul.
Indiana-Illinois	6.25–6.50		*		S. O. Indiana territory except Detroit and vicinity. For Ohio on delivered basis only.

*Shipments made from E. Chicago, Ind., and Wood River, Ill., according to conditions and freight rates; no prices F.O.B. point of origin can be given.

Chicago Resale Market

CHICAGO, March 22

A NUMBER of Chicago marketers advanced their spot prices on U. S. Motor gasoline to 6.125 and 6.25 cents late the past week, while others continued to sell at 6 cents for prompt shipment. Two or three marketers bought some Motor at 6.125 cents, f.o.b. Group 3, from a Texas refiner for shipment over April. Several marketers said they were unable to buy Oklahoma Motor, for April shipment, under 6.25 cents and that the few refiners who were offering goods over this period wanted at least 6.375 cents. Kerosenes were in steady demand with little change reported in prices. Spot tank car demand for distillates, gas and fuel oils was light and prices were lower.

Following prices represent sales made on Group 3 freight basis, although shipments may originate in other refining districts, such as North Texas, West Texas, Arkansas, Louisiana, Illinois, Indiana, Kentucky, etc.

	Prices Mar. 24	**Prices Mar. 17**	**Prices Mar. 10**
58-60 U. S. Motor, 437 e.p.	6.125– 6.50	6.00 – 6.50	5.75 – 6.50
60-62 437 e.p. gasoline	6.25 – 6.50	6.00 – 6.50	5.875– 6.50
60-62 400 e.p. gasoline	6.50 – 6.625	6.375– 6.625	6.25 – 6.50
64-66 375 e.p. gasoline	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25
68-70 350-360 e.p. gasoline	7.50 – 7.75	7.50 – 7.75	7.50 – 7.75
41-43 w.w. kerosene	4.25 – 4.375	4.25 – 4.375	4.125– 4.25
42-44 w.w. kerosene	4.50 – 4.75	4.375– 4.625	4.375– 4.625
38-40 straw distillate	3.00 – 3.125	3.00 – 3.25	3.125– 3.375
32-36 ordinary dark gas oil	2.375– 2.625	2.50 – 2.625	2.50 – 2.625
32-36 dark zero gas oil	2.625– 2.75	2.75 – 3.00	2.75 – 3.00
32-36 straw zero gas oil	2.75 – 2.875	2.875– 3.125	3.00 – 3.125
28-30 zero fuel oil (per bbl.)	$0.975–$1.025	$1.00 –$1.075	$1.05 –$1.10
28-30 fuel oil (per bbl.)	$0.95 –$1.00	$1.00 –$1.05	$1.00 –$1.05
24-26 fuel oil (per bbl.)	$0.80 –$0.875	$0.80 –$0.875	$0.825–$0.90
18-22 fuel oil, low sulfur (per bbl.)	$0.70 –$0.75	$0.70 –$0.775	$0.75 –$0.775
18-22 fuel oil, high sulfur zero (per bbl.)	$0.675–$0.725	$0.675–$0.75	$0.70 –$0.75

Weighted Average Prices

OKLAHOMA

	Mar. 24		**Mar. 17**		**Mar. 10**	
	No. of cars	**Price**	**No. of cars**	**Price**	**No. of cars**	**Price**
58-60 U. S. Motor, 437 e.p.	18	6.4166	16	6.2734	56	6.4174
60-62 437 e.p. gasoline	No sales reported		7	6.2500	No sales reported	
60-62 400 e.p. gasoline	4	6.7500	2	6.7500	4	6.6250
64-66 375 e.p. gasoline	No sales reported		No sales reported		1	7.2500
*58-60 437 e.p. gasoline	..	6.125–6.50	..	6.00–6.50	..	5.875–6.50

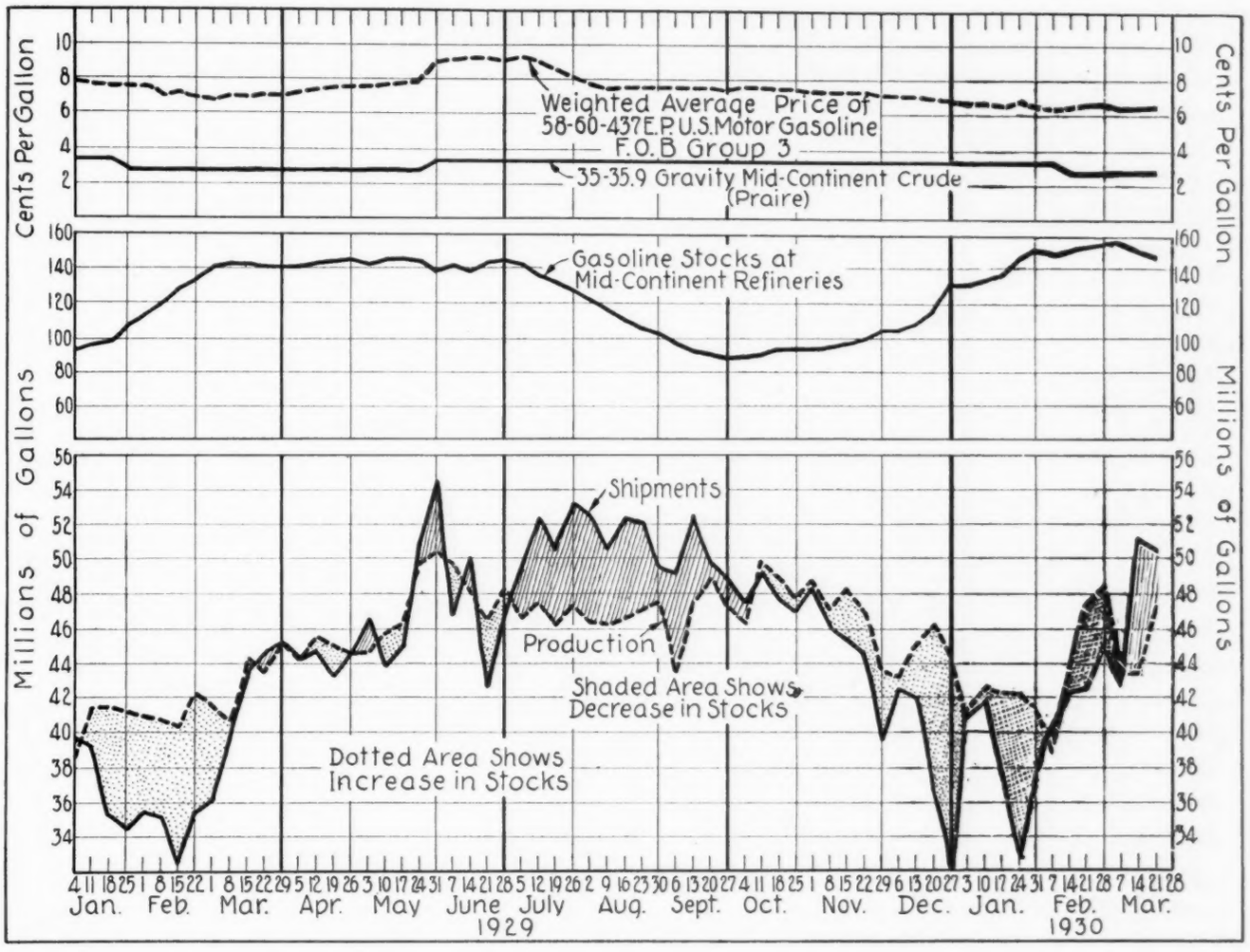
KANSAS

	Mar. 24		**Mar. 17**		**Mar. 10**	
	No. of cars	**Price**	**No. of cars**	**Price**	**No. of Cars**	**Price**
58-60 U. S. Motor, 437 e.p.	No sales reported		3	6.5000	No sales reported	

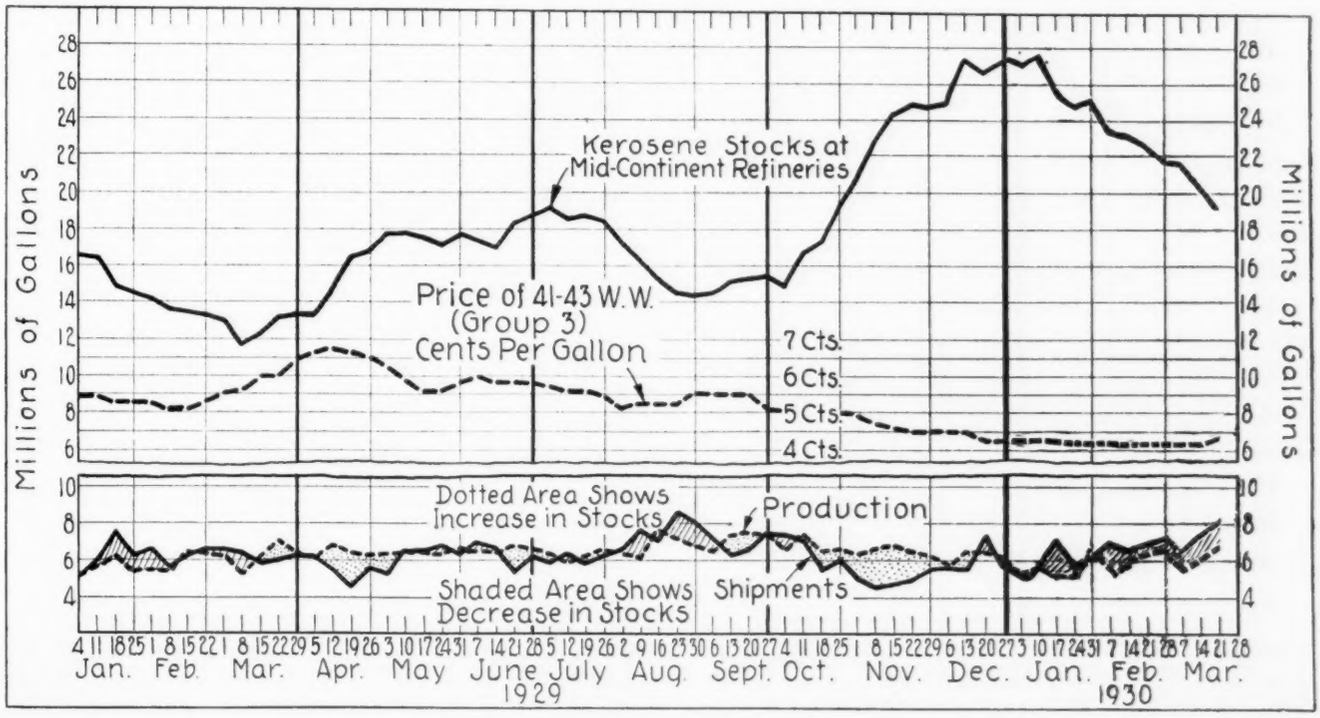
*Full U. S. Motor specifications not guaranteed. Prices represent both quotations and sales.

Barometer of Mid-Continent Refinery Market—Week Ending March 21

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News



Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on page 98



Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices Mar. 24	Prices Mar. 17	Prices Mar. 10
48-50 450 e.p. naphtha	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
50-52 450 e.p. naphtha	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
56-58 450 e.p. gasoline	5.75 – 6.25	5.75 – 6.25	5.75 – 6.25
58-60 450 e.p. gasoline	5.75 – 6.25	5.75 – 6.25	5.75 – 6.25
64-66 390 e.p. gasoline	6.75 – 7.25	7.00 – 7.25	7.00 – 7.25
68-70 350-360 e.p. gasoline	7.375– 7.50	7.875– 8.25	7.875– 8.25

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

52-54 Naphtha	7.25 – 7.50	7.00 – 7.50	7.00 – 7.25
54-56 Naphtha	7.25 – 7.50	7.25	7.25 – 7.50
58-60 U.S. Motor 437 e.p.	7.25 – 7.75	7.50 – 7.75	7.25 – 7.75
60-62 400-410 e.p. gasoline	7.625– 8.125	7.75 – 8.25	7.50 – 8.00
64-66 390 e.p. gasoline	7.875– 8.50	8.00 – 8.75	8.00 – 8.50
68-70 350-360 e.p.	8.50 – 9.00	8.75 – 9.50	8.50 – 9.50

OHIO (Quotations of S. O. Ohio. 4c state tax to be added.)

U. S. Motor Gasoline

Ohio, delivery at any point	9.50	9.50	9.50

KANSAS (F. o. b. refinery Kansas destination)

60-62 437 e.p. gasoline	6.75 – 7.25	6.75 – 7.25	6.75 – 7.25
60-62 400 e.p. gasoline	6.875– 7.25	6.75 – 7.50	6.75 – 7.50
64-66 375 e.p. gasoline	7.25 – 7.50	7.50 – 8.00	7.50 – 8.00

NORTH TEXAS (F. o. b. North Texas refineries)

56-58 450 e.p. gasoline	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
58-60 450 e.p. gasoline	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
58-60 U.S. Motor 437 e.p.	6.125– 6.375	6.125– 6.25	5.875– 6.00
60-62 400 e.p. gasoline	6.375– 6.50	6.125– 6.25	6.125– 6.25
64-66 390 e.p. gasoline	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00
64-66 375 e.p. gasoline	7.50	7.50	7.50
68-70 350-360 e.p. gasoline	7.75	7.75	7.75

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment)

50-52 naphtha	5.50	5.50	5.50
58-60 437 e.p. gasoline	5.75	5.75	5.75
58-60 U.S. Motor 437 e.p. gasoline	6.25	6.25	6.00

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

58-60 U S. Motor gasoline	6.75	6.50	6.50

ARKANSAS (Ark., N. La. and Miss. destination)

58-60 U.S. Motor 437 e.p.	6.75	6.50	6.50

CALIFORNIA (3c tax to be added to California gasoline prices if used n state.)

54-58 U.S. Motor 437 e.p.	8.50 – 9.50	8.00 – 9.50	8.25 – 9.50
54-58 U.S. Motor, for outside state shipment	6.50 – 7.25	6.50 – 7.25	7.00 – 8.00
58-61 375-400 e.p. gasoline	9.50 –11.00	9.50 –10.50	9.50 –11.00
42-45 Engine Distillate 445-480 e.p.	7.00 – 8.00	7.00 – 8.00	7.25 – 8.50

NATURAL GASOLINE

(Note: End point of all grades, not over 375 F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA (F. o. b. Oklahoma refineries)

Grade AA, 80-87.9, 90% Recovery	5.625	5.50	5.375
Grade A, 72-79.9, 90% Recovery	5.75	5.50	5.50
Grade BB, 84-92, 85% Recovery	4.75	4.50	4.375– 4.50
Grade B, 76-83.9, 85% Recovery	5.00	4.50	4.50
Grade C, 80-92, 78% Recovery	4.75	4.50	4.375

NORTH TEXAS (F. o. b. Breckenridge)

Grade AA, 80-87.9, 90% Recovery	5.625	5.50	5.375
Grade A, 72-79.9, 90% Recovery	5.75	5.50	5.50
Grade BB, 84-92, 85% Recovery	4.75	4.50	4.375– 4.50
Grade B, 76-83.9, 85% Recovery	5.00	4.50	4.50
Grade C, 80-92, 78% Recovery	4.75	4.50	4.375

NORTH LOUISIANA (F. o. b. Monroe District)

	Prices Mar. 24	Prices Mar. 17	Prices Mar. 10
Grade AA	†6.00	†5.50	†5.50
Grade BB	†5.25	†4.50	†4.50
Grade C	†5.00	†4.375	†4.375

CALIFORNIA (F. o. b. California refineries)

75-85, 375-390 e.p. blend	7.50 – 8.25	7.50 – 8.25	7.75 – 8.00

BURNING OILS

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

45 w.w. kerosene	5.75 – 6.125	5.875– 6.125	5.75 – 6.00
46 w.w. kerosene	6.00 – 6.50	6.25 – 6.50	6.00 – 6.25
47 w.w. kerosene	6.25 – 6.75	6.50 – 6.875	6.50
300 mineral seal	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00

OKLAHOMA (F. o. b. Oklahoma refineries)

41-43 w.w. kerosene	4.25 – 4.50	4.25 – 4.375	4.125– 4.375
42-44 w.w. kerosene	4.75	4.50 – 4.75	4.375– 4.50

KANSAS (F. o. b. refinery Kansas destination)

41-43 w.w. kerosene	4.75 – 4.875	4.75	4.75
42-44 w.w. kerosene	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25

NORTH TEXAS (F. o. b. North Texas refineries)

40-42 w.w. kerosene	4.00 – 4.125	4.00 – 4.125	4.00
41-43 w.w. kerosene	4.25	4.25	4.125– 4.25

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

41-43 w.w. kerosene	4.50 – 4.75	4.50 – 4.75	4.75 – 5.00
42-44 w.w. kerosene	4.75 – 5.00	4.75 – 5.00	5.00

ARKANSAS (Ark., N. La. and Miss. destination)

42-44 w.w. kerosene	5.00	5.00	5.00

CALIFORNIA (F. o. b. California refineries)

38-40 w.w. kerosene	4.25 – 5.50	4.50 – 5.50	4.50 – 5.75

NEUTRAL OIL

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

Vis.		(Viscosity at 70° F.)	
200 No. 3 Assoc. Filt.	25.00 –26.00	25.00 –26.00	25.00 –26.00
180 No. 3 Assoc. Filt.	21.00 –22.00	21.00 –22.00	21.00 –22.50
150 No. 3 Assoc. Filt.	15.50 –17.00	16.00 –17.00	15.50 –17.00
		(Non Viscous)	
34 Grav. 330-340 Flash	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50

****OKLAHOMA** (F. o. b. Oklahoma refineries)

Vis.	Color		(Viscosity at 100° F.)	
100	No. 2	6.00 – 7.50	6.00 – 7.50	6.00 – 7.50
150	No. 3	7.75 – 8.50	7.75 – 8.50	7.75 – 8.50
150	No. 4	6.75 – 8.00	6.75 – 8.00	6.75 – 8.00
180	No. 3	9.00 –10.00	9.00 –10.00	9.00 –10.00
180	No. 4	8.75 – 9.50	8.75 – 9.50	8.75 – 9.50
180	No. 5	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
200	No. 3	11.00 –12.50	11.00 –12.50	11.00 –12.50
200	No. 4	10.00 –11.00	10.00 –11.00	10.00 –11.00
200	No. 5	9.50 –11.00	9.50 –11.00	9.50 –11.00
220	No. 3	12.50 –13.50	12.50 –13.50	12.50 –13.50
220	No. 4	12.00 –12.50	12.00 –12.50	12.00 –12.50
220	No. 5	11.00 –12.00	11.00 –12.00	11.00 –12.00
240	No. 3	13.00 –15.00	13.00 –15.00	13.00 –15.00
240	No. 4	12.00 –13.50	12.00 –13.50	12.00 –13.50
240	No. 5	11.00 –13.00	11.00 –13.00	11.00 –13.00
280	No. 3	16.00 –17.00	16.00 –17.00	16.00 –17.00
280	No. 4	14.00 –16.00	14.00 –16.00	14.00 –16.00
280	No. 5	13.00 –15.00	13.00 –15.00	13.00 –15.00

†Prices nominal ††Only one refiner quoting *Quotations only **Represents Both Sales and Quotations.

Refinery Markets Wax, Lubricants, Heavy Oil

Prices given below are in cents per gallon, except where $ is shown

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

GULF COASTAL (F. o. b. Gulf Coastal refineries)

Vis.	Color	Prices Mar. 24	Prices Mar. 17	Prices Mar. 10
		(Viscosity at 100° F., pour test 0)		
100	No. 2 Pale	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00
200	No. 3 Pale	9.50 – 9.75	9.50 – 9.75	9.50 – 9.75
300	No. 3 Pale	10.75 –11.00	10.75 –11.00	10.75 –11.00
500	No. 3½ Pale	12.00 –12.25	12.00 –12.25	12.00 –12.25
750	No. 4 Pale	13.50 –13.75	13.50 –13.75	13.50 –13.75
1200	No. 5 Pale	16.00 –16.50	16.00 –16.50	16.00 –16.50
200	No. 5½ Red Oil	8.75 – 9.00	8.75 – 9.00	8.75 – 9.00
300	No. 5½ Red Oil	10.00 –10.25	10.00 –10.25	10.00 –10.25
500	No. 6 Red Oil	11.25 –11.50	11.25 –11.50	11.25 –11.50
750	No. 6 Red Oil	12.75 –13.00	12.75 –13.00	12.75 –13.00
1200	No. 5-6 Red Oil	15.00 –15.25	15.00 –15.25	15.00 –15.25

‡CALIFORNIA (F. o. b. California refineries)

Vis.	Color	(Viscosity at 100° F.)		
100	No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200	No. 3	11.50	11.50	11.50
300	No. 3	13.00	13.00	13.00
450	No. 3	15.50	15.50	15.50
550	No. 3	16.50	16.50	16.50
600	No. 3	17.00	17.00	17.00
200	No. 5	11.00	11.00	11.00
300	No. 5	12.00	12.00	12.00
400	No. 5	14.00	14.00	14.00
500	No. 5	15.00	15.00	15.00
600	No. 5	16.00	16.00	16.00
700	No. 7	18.00	18.00	18.00

‡Neutral oils not manufactured commercially in California.

CYLINDER STOCKS

****OKLAHOMA** (F. o. b. Oklahoma refineries)

190-200 Vis. D at 210° Brt. St	41.00 –42.00	41.00 –42.00	41.00 –42.00
150-160 Vis. D at 210° Brt. St	36.00 –37.00	37.00	37.00
150-160 Vis. E 210° Brt. St	35.00 –36.00	35.00 –36.00	35.00 –36.00
600 St. Ref. Olive Green	9.00 –10.00	9.00 –10.00	9.00 –10.00
600 St. Ref. Dark Green	9.00	9.00	9.00
Black Oil	5.00	5.00	5.00

PENNSYLVANIA (F. o. b. Western Penna. refineries) (A.S.T.M. Tests)

600 Steam Refined, filterable	24.00 –25.00	24.00 –25.00	23.50 –25.00
650 Steam Refined	29.50 –31.00	29.50 –31.00	29.50 –31.00
600 Flash	32.00 –33.00	32.00 –33.00	31.50 –33.00
630 Flash	35.00 –36.50	35.00 –36.50	35.00 –36.50
600 Warren E	29.00 –30.00	29.50 –30.00	30.00 –31.00
600 Oil City E	28.00 –29.00	28.50 –30.00	29.00 –30.00
600 D Filtered	34.50 –35.00	35.00	34.50 –35.00
Cold Test Stock, 40-50 p. p., 140-150 vis. at 210° 540-550 flash, No. 8 color	39.50 –41.00	40.00 –41.00	39.50 –41.00
40-50 p.p., 140-150 vis. at 210°, 540-550 flash, No. 6-6½ color diluted	38.00 –40.00	38.00 –40.00	38.00 –39.00

WAX

PENNSYLVANIA (Per pound, F. o. b. New York)

122-124 white crude scale, a.m.p.	2.625– 2.875	2.875– 3.00	2.875– 3.00
124-126 white crude scale, a.m.p.	2.625– 2.875	2.875– 3.00	2.90 – 3.00

****OKLAHOMA** (Per pound in barrels; in a few instances, per pound in burlap bags; F. o. b. Oklahoma refineries)

124-126 White Crude Scale, a.m.p.	2.50 – 2.625	2.50 – 2.625	2.625– 2.875

CALIFORNIA

Prices on California wax discontinued, as very little is made in California.

DISTILLATE, GAS AND FUEL OIL

PENNSYLVANIA (For outside Pittsburgh district)

36-40 fuel oil	4.375– 4.625	4.50 – 4.875	4.50 – 4.75
30-34 fuel oil	4.375– 4.50	4.375– 4.50	4.50 – 4.625
28-32 fuel oil	4.375– 4.50	4.375– 4.50	4.50 – 4.625

†Prices nominal **††Only one refiner quoting** ***Quotations only**

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices Mar. 24	Prices Mar. 17	Prices Mar. 10
38-40 straw distillate	3.00 – 3.25	3.125– 3.375	3.125– 3.375
36-38 straw distillate	2.875	3.00 – 3.125	3.00 – 3.125
32-36 straw gas oil	2.625– 2.875	2.625– 2.875	2.625– 2.875
32-36 straw gas oil zero	3.00	3.00	3.00
32-36 dark gas oil	2.375– 2.50	2.375– 2.625	2.375– 2.625
32-36 dark gas oil zero	2.50 – 2.75	2.625– 3.00	2.625– 3.00
28-30 zero fuel oil (per bbl.)	$1.05 – 1.10	$1.05 – 1.10	$1.05 – 1.10
28-30 fuel oil (per bbl.)	$0.95 –$1.00	$1.00 – 1.05	$1.00 – 1.05
26-28 fuel oil (per bbl.)	$0.85 – 0.95	$0.85 – 0.95	$0.85 – 0.95
24-26 fuel oil (per bbl.)	$0.80 – 0.85	$0.80 – 0.85	$0.80 – 0.85
22-26 fuel oil (per bbl.)	$0.775– 0.80	$0.775– 0.80	$0.775– 0.825
18-22 fuel oil (per bbl.)	$0.65 – 0.75	$0.675– 0.775	$0.725– 0.825
16-20 fuel oil (per bbl.)	$0.625– 0.70	$0.65 – 0.70	$0.675– 0.725
14-16 fuel oil (per bbl.)	$0.625– 0.70	$0.65 – 0.70	$0.675– 0.725

KANSAS (F. o. b. refinery Kansas destination)

38-40 straw distillate	3.50 – 3.75	3.50 – 3.75	3.625– 4.00
36-38 straw distillate	3.25	3.25	3.50 – 3.75
32-36 straw gas oil	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50
18-22 fuel oil (per bbl.)	$0.80 – 0.85	$0.80 – 0.85	$0.825– 0.875
10-14 fuel oil (per bbl.)	$0.725– 0.775	$0.725– 0.775	$0.725– 0.825

NORTH TEXAS (F. o. b. North Texas refineries)

38-40 straw distillate	3.00 – 3.25	3.00 – 3.25	3.00 – 3.25
38-40 p.w. treated distillate	3.25	3.25	3.25
32-36 gas oil, cracked	2.50	2.50	2.50
32-36 St. reduced gas oil	2.375– 2.50	2.375– 2.50	2.375– 2.50
24-26 fuel oil (per bbl.)	$0.60 – 0.65	$0.60 – 0.65	$0.60 – 0.65
20-24 fuel oil (per bbl.)	$0.575	$0.575	$0.575
18-22 fuel oil (per bbl.)	$0.55	$0.55	$0.55

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment)

34-38 gas oil	2.50 – 2.75	2.50 – 2.75	2.50 – 2.75
30-32 gas oil	2.25 – 2.50	2.25 – 2.50	2.25 – 2.50
28-30 zero gas oil	2.50 – 2.875	2.50 – 2.875	2.50 – 2.875
18-22 fuel oil (per bbl.)	$0.60 – 0.80	$0.60 – 0.80	$0.60 – 0.80

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

32-36 gas oil, dark	3.00	3.25	3.25
30-32 gas oil, straw	3.00	3.25	3.25
14-16 fuel oil (per bbl.)	$0.75 – 0.85	$0.75 – 0.85	$0.80 – 0.85

ARKANSAS (Ark., N. La. and Miss. destination)

30-32 gas oil, straw	3.00	3.25	3.50
32-36 dark gas oil	3.00	3.25	3.25
28-30 gas oil	2.75	3.00	3.25
20-24 fuel oil (per bbl.)	$0.95	$0.95	$0.95
9-12 fuel oil (per bbl.)	$0.75	$0.75	$0.75
Black oil	3.25	3.25	3.25

CALIFORNIA (F. o. b. San Joaquin Valley. Pipe line charge to San Francisco 24c per bbl. more and to San Pedro 20c per bbl. more.)

14-18 fuel oil (per bbl.)	$0.45 –$0.55	$0.45 –$0.55	$0.45 –$0.55
14-18 Bunker oil (per bbl.)	$0.70 –$0.75	$0.70 –$0.75	$0.70 –$0.75
30-34 gas oil (per bbl.)	$0.70 –$0.90	$0.70 –$0.90	$0.70 –$0.90
27 Plus Diesel oil (per bbl.)	$0.70 –$0.90	$0.70 –$0.90	$0.70 –$0.90

PETROLATUMS

PENNSYLVANIA (Per pound, in barrels, carload lots, f. o. b. refinery. In tank cars ⅛c to ¾c per pound less.) Two refiners quoting.

Snow White	8.25 – 8.50	8.25 – 8.50	8.25 – 8.50
Lily White	7.25 – 7.50	7.25 – 7.50	7.25 – 7.50
Cream White	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
Light Amber	3.50 – 3.625	3.50 – 3.625	3.50 – 3.625
Amber	3.25 – 3.375	3.25 – 3.375	3.25 – 3.375
Red	3.00	3.00	3.00

PETROLEUM COKE

****OKLAHOMA** (F. o. b. Oklahoma refineries)

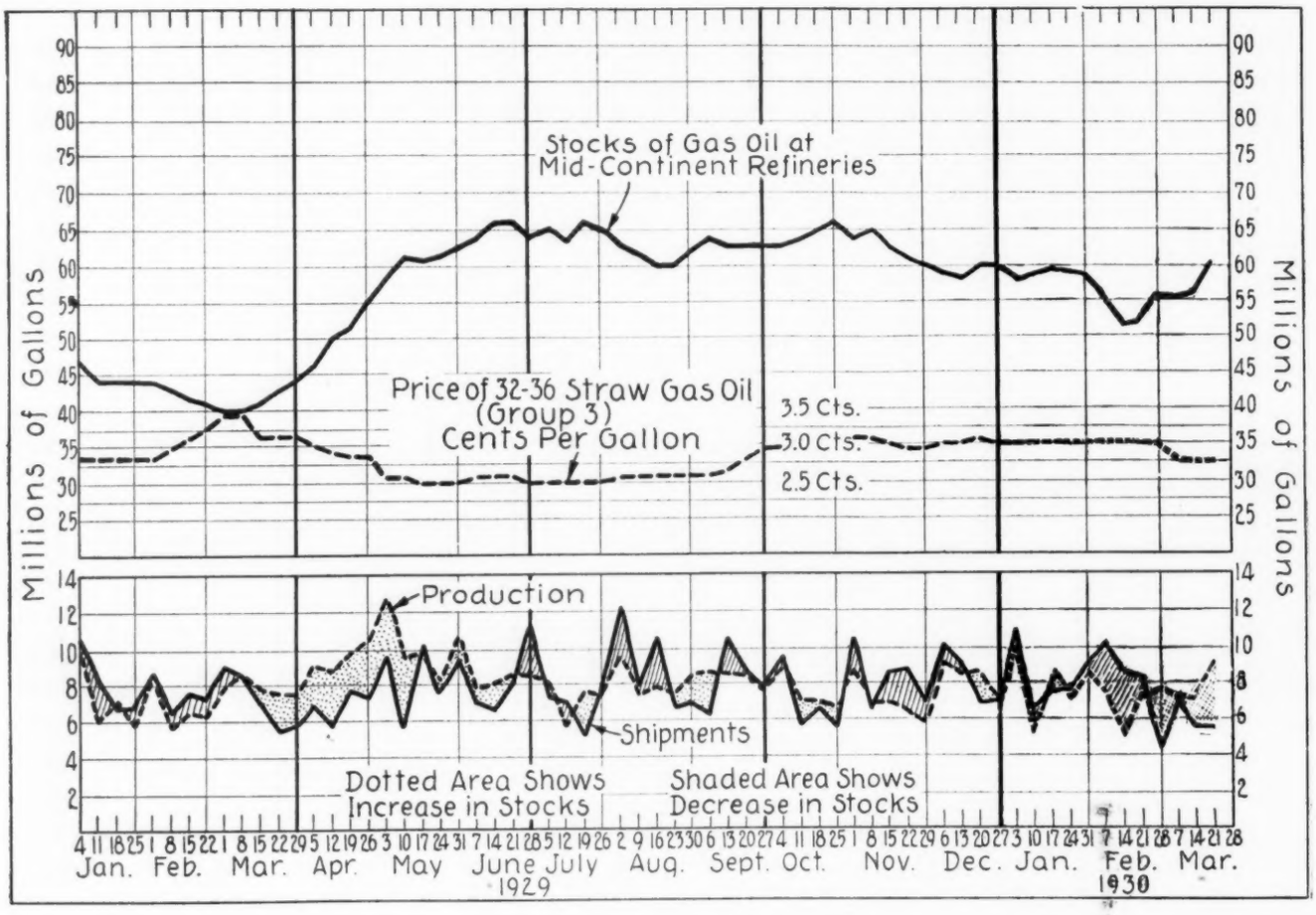
(Per ton in car lots)

Lump	$4.50 – 5.00	$4.50 – 5.00	$4.50 – 5.00
Still run	$3.00	$3.00	$3.00
Breeze	$2.00	$2.00	$2.00

****Represents Both Sales and Quotations.**

Barometer of Mid-Continent Refinery Market—Week Ending March 21

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News


Stocks of Gas Oil at Mid-Continent Refineries
Price of 32-36 Straw Gas Oil (Group 3) Cents Per Gallon
3.5 Cts.
3.0 Cts.
2.5 Cts.
Millions of Gallons
Production
Shipments
Dotted Area Shows Increase in Stocks
Shaded Area Shows Decrease in Stocks
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1929
1930

(*Continued from Page* 103)

from storage at this season of the year, prices moved upward 0.125 to 0.25 cent a gallon.

Distillates, gas oils and several grades of fuel oils continued to lose ground. The distillates apparently were out of the picture for this season, and refiners almost without exception reported the demand had not been nearly as brisk as they had anticipated. Zero gas oils in Oklahoma were comparatively scarce, but more freely available in other districts.

The higher cold test fuel oils were coming into their own and were responsible in part for the lower prices. One large buyer reported, however, that demand from industrial users had dropped considerably. One large account, the buyer said, had not ordered a car of fuel so far this month, whereas normally the user buys 50 to 100 cars a month.

Neutral oils were exceptionally active with very little oil available for spot shipment. Several refiners who compound their own branded motor oils were forced into the market to obtain their requirements since their own production was not sufficient.

Bright stock prices were unchanged with demand steady, a majority of manufacturers reported. Wax was soft although there were no changes in prices during the week.

Urges Uniform Aviation Gasoline Tax Laws

BARTLESVILLE, Okla., March 24.—Frank Phillips, president of the Phillips Petroleum Co. here, one of the large producers of aviation gasoline, wired the governors of every state March 23 asking them to consider a uniform policy exempting gasoline used in flying from taxation.

"This is to urge you to carefully consider question of tax on gasoline used in aircraft. Pilots and aircraft owners frequently suffer by different state tax policies. Survey shows majority sacrifice rebate privileges because of costly delay and red tape in obtaining refunds. Others constantly make open protest in states which do not offer refunds but instead use the tax to swell highway fund and other non-aeronautical activities.

"Speaking for large group of pilots and aircraft owners suggest states consider uniform tax policy to exempt aviation from gasoline tax which works hardship on pioneering industry or apply revenue exclusively toward airway or airport developments which would materially aid all aviation."

Mr. Phillips pointed out that 16 states collect a tax on aviation gasoline and do not provide for any refund. The tax is applied to highways and other non-aeronautical activities. Twenty-three states provide for a rebate of the tax. The remaining nine refund the tax only in instances of commercial use. Even the states which collect and rebate the tax have different policies. Certain of these states allow for evaporation and shrinkage; a few for use in interstate commerce; others if purchased in 25 gallon quantities or over, and numerous other fixed limitations.

"Last year," Mr. Phillips says, "Airplanes consumed approximately 40,000,000 gallons of gasoline and the 1930 consumption will easily double the 1929 total. Even an extremely modest tax on this consumption would create a fund that could be of decided benefit to the aeronautical industry."

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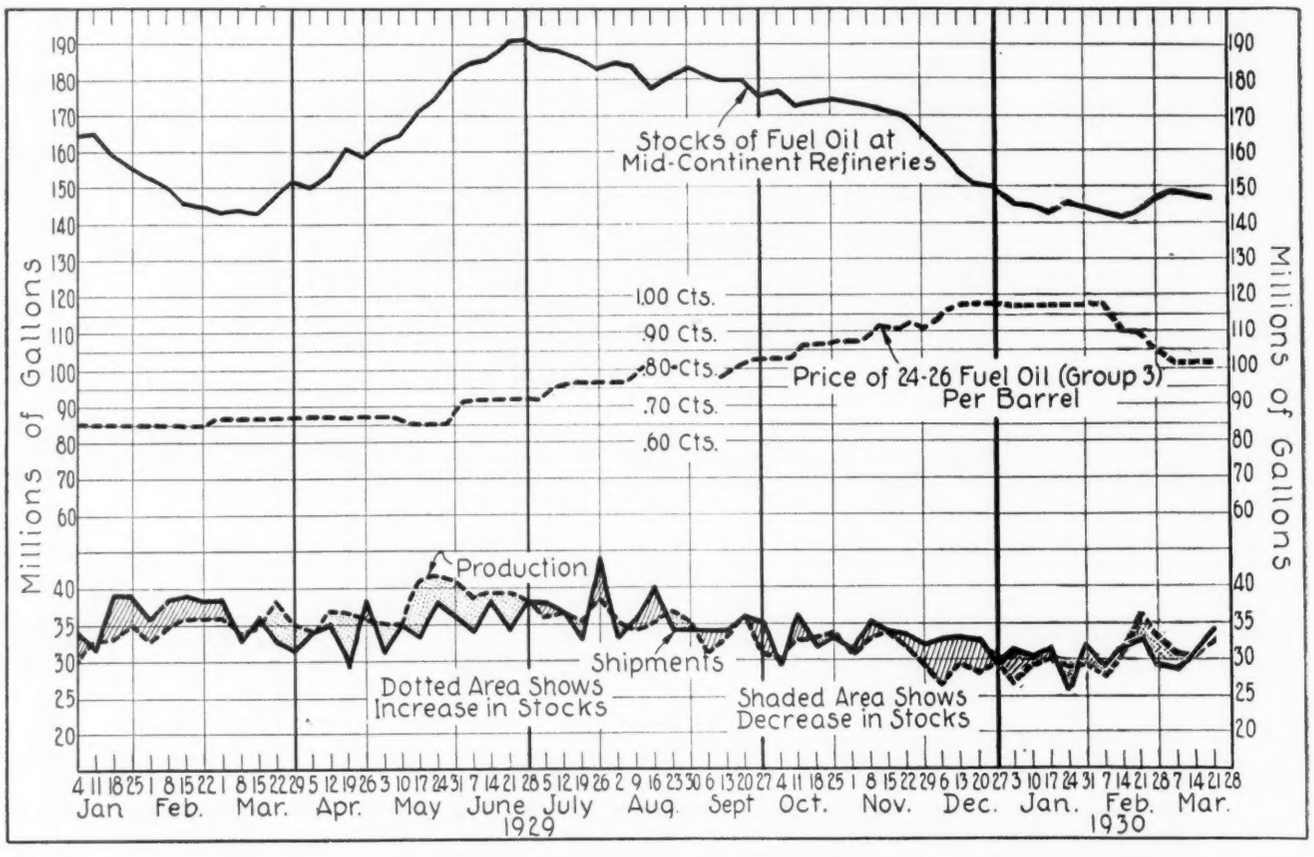
GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TIRES THAN ON ANY OTHER KIND

Barometer of Mid-Continent Refinery Market—Week Ending March 21

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News



California Refinery Market

Retail Price Cutting Increases

LOS ANGELES, March 22

ALTHOUGH retail prices of some major gasolines were lowered during the past week at several points on the Pacific Coast, as resellers attempted to meet competition presented by stations selling "bootleg" motor fuel, officials of these major companies denied that a reduction had been made in tankwagon prices.

It was rumored early in the week that tank wagon prices had been reduced when a large number of service stations in and around Los Angeles were selling gasoline for 16.50 and 17.50 cents although the prevailing price prior to the recent flurry in price cutting had been 19.50 cents in this vicinity.

In place of the tank wagon price reduction it was reported that special concessions have been made to station operators to enable them to meet the cut-rate conditions.

Every effort was being made by the major interests to prevent an open break in the market structure and as a result of the expected reduction in crude oil production at Santa Fe Springs through the operation of the gas conservation law, it was felt that if prices can be held in line for the next two or three weeks marketing conditions will take a turn for the better.

Lower tanker rates on clean boats to Atlantic domestic and foreign ports has given an optimistic tone to the western export market. This factor together with the report of better conditions on the east coast and reports of a few inquiries being made by eastern buyers have raised the hopes of local shippers who had nearly given up hope of securing any spot business before spring.

Quotations on export petroleum products remained unchanged during the past week from those posted for week ended March 15.

Refiners in the Los Angeles basin district reported the demand for gasoline to be used within the state was improved over that of a week ago. Although sales showed a slight decrease in volume during the early part of the week, due to unfavorable motoring weather, improved weather conditions during the latter half resulted in a noticeable increase in orders. A majority of the trade reported prices on this commodity ranged from 8.50 to 9.50 cents, tax additional.

Motor fuel to be used at points outside the state continued to be inactive at prices of from 6.50 to 7.25 cents. One dealer reported that he expected this business to pick up within a short time due to increased seasonal demand.

Quotations on other refinery products, with the exception of fuel oil, remained unchanged during the past week. Spot fuel oil was reported to be bringing slightly higher prices. Several of the trade were asking $0.50 to $0.55 per barrel as compared with $0.45 to $0.50 asked previous to the raise in crude. One operator reported he had bought 40 cars of fuel oil at $0.41 during the past week but

did not expect much more to be available at this figure.

Although at present it is only a rumor, the word is going around that the crude oil structure is due for another revision in the immediate future, along the line of the recent raise.

Pennsylvania Market

Fuel Oil and Wax Prices Down

CLEVELAND, March 24.—Fuel oil and wax were outstanding soft spots in western Pennsylvania markets last week. Prices for both commodities receded 0.125 to 0.25 cent as they approached their off season. Improved demand for gasoline and kerosene was noted in some districts while other oils generally were quiet with prices largely unchanged.

With the domestic burning oil season about at an end traders have been looking more to industrial consumers for business. Demand from the latter has been slow in getting under way and considerable distress fuel oil has appeared in the market as a result.

Both high and low gravity fuel oils were available rather freely at 4.375 cents a gallon last week. Several sellers reported they had been running into competition at 4.25 cents but a thorough check of the market failed to reveal any sizeable volume of business having been placed at this figure.

More favorable motoring weather during the early part of last week brought a flurry of gasoline buying. Low priced gasoline disappeared from the market for a few days but buying again slowed up and prices lost the ground they had gained during the flurry. U. S. Motor still was offered in fair sized quantities at 7.25 to 7.375 cents. Some sellers were quoting as high as 7.75 cents but reported receiving very few orders.

Likewise a flurry of kerosene buying shoved the minimum quotation for 45 water white up 0.125 cent to 5.875 cents during the early part of the week but by Saturday this grade was again being offered at 5.75 cents with some shading of this figure reported.

Neutral oils, steam refined stocks and bright stocks generally were inactive although the inquiry for neutral oils was reported somewhat better.

Gulf Lube Demand Above Normal

HOUSTON, March 24.—Manufacturers of Gulf Coastal lubricants are looking ahead to spring requirements of jobbers for lubes and already report increased demand. Shipments have been somewhat above normal for this season of the year. Prices remain firm at recently established higher levels.

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Eastern Domestic Markets

Spot Gasoline Demand Continues Quiet

Staff Special
NEW YORK, March 22

GASOLINE markets were unchanged in all eastern districts the past week. Spot movement was thin with contract shipments fair. Prices in the New York harbor district, however, were higher. Kerosene prices were at levels of the week before, but sales were few and some observers were looking for lower prices. Colder weather stimulated gas oil and furnace oil sales slightly but prices were unchanged.

There was a spread of 0.75 cent between the high and low of U. S. Motor gasoline prices in the New York harbor district at the end of the week. Several suppliers were quoting 8.50 cents and reported they would pass up business rather than to sell at lower prices. However, gasoline was available in barge or tank car lots at 7.75 cents and many of the trade indicated that the bulk of the movement was at this price.

As a result of the higher prices quoted by some refiners the market was somewhat unsettled. Suppliers selling at 7.75 cents have indicated they will revise their prices upward if market conditions warrant, while one of the refiners quoting the higher figure said his price would be lower if he found he was out of step.

Reports were heard of low priced gasoline moving from New York harbor into eastern Pennsylvania. One company sold a few cars for shipment into that district at 7.625 cents, but the sale was not believed representative of the general market. Unconfirmed reports were heard that U. S. Motor was being sold there at 7.375 cents, f.o.b. New York harbor, but one company operating in that district believed the gasoline to be on contract.

Philadelphia refiners reported an increase in the number of sales below 8.25 cents but at the end of the week none had changed his price. The bottom has been reached according to New England refiners, who expected prices to go higher as gallonage increases. The market at points south of Philadelphia was changed but little over the week previous although sellers reported spot orders were fair. Better weather in these districts has accounted for the increase in sales.

California gasoline was higher at New York and one company reported sales at 8.75 cents, the top quotation. Philadelphia and Baltimore markets were unchanged although one seller in the Baltimore district indicated he would accept large orders at 8.25 cents. Another distributor in this district was adhering to his price of 8.50 cents and reported he had quoted that price over April.

Large stocks of California gasoline on the east coast have kept eastern distributors out of the west coast market and as a result no spot Congo business was placed the past week with California refiners. Some of the trade a week ago expected to see some transactions closed in view of the fact that several clean ships were reported idle in California ports, which the trade believed could be chartered at a good figure. The tanker market was unchanged the past week at $0.90 to $1.00 although some of the trade believed a ship might be fixed at $0.85 or lower if loaded and moved promptly.

Kerosene markets in the middle eastern districts continued to ease off; more refiners were willing to accept business at the low of the price range. A Baltimore distributor reported Pennsylvania kerosene was available at 5.50 cents f.o.b. refinery for eastern shipment while a New York seller reported the best price he was able to get was 5.625 cents for resale.

Gulf Coast Markets

Bunker Oil in Cargo Lots Quoted Higher

Staff Special
NEW YORK, March 22

GULF markets were practically at a standstill the past week although there was an inquiry for a large quantity of bunker C fuel oil and a slight increase in price for that commodity. Prices for all other commodities both for export and domestic shipment, were unchanged and buyers showed no interest in either division of the market.

An inquiry from the United Kingdom for 40,000 tons of bunker C fuel oil for shipment over the balance of the year, was circulated among the trade late in the week. It was believed the inquiry came from the British Admiralty as the buyer requested a fuel of certain specifications not revealed but believed higher than specifications for ordinary bunker C.

In line with the trade's forecast of several days ago, bunker C prices for cargo lots, moved up to $0.70 flat at the end of the week, a 2-cent increase over the previous week. The majority of the trade reported that stocks of this oil were in good shape; some sellers were looking for higher prices while a buyer believed prices might be shaded fractionally. Two sellers are not offering anything for export since their shipments against contracts have been heavy even though spot orders have been few. One large refiner was quoting $0.75 and some of the trade believed that price might be established in the near future as the high of the quotation range. There have been fewer offerings of low gravity bunker oil which was the occasion for considerable comment several weeks ago, the trade reported.

Cased gasoline and kerosene continued to move in a fair way principally to South America. One company has reported a fair demand for aviation gasoline from South American countries. Prices for cased gasoline have not changed and the trade looked for none in the near future because of the steady movement.

No reduction in kerosene prices is expected at the Gulf because of the reputed price war between the Standard of New York and the Royal Dutch Shell in India, which, according to reports, has resulted in the Shell company slashing 9 cents per gallon off the price. The trade pointed out that the bulk of refined oils going into India are refined abroad, a large portion of it coming from Shell's plant at Sumatra. The Shell company made the reduction, according to reports among the New York trade, in retaliation for Standard's purchase of a large quantity of refined oils from the Soviet government.

The majority of suppliers believed that heavy buying from Continental buyers has about run its course but they were of the opinion that occasional sales would be made for delivery in May, June and July, in the next few weeks. The English account which was seeking two cargoes of 400 end point gasoline a week ago if a favorable tanker charter could be negotiated, was still in the market at the close of the past week.

Wax Markets

Prices Continue Downward

NEW YORK, March 22.—Prices of several grades of wax were reduced 0.125 to 0.375-cent the past week both at New York and the Gulf. The lower prices resulted from low foreign bids and refiners' efforts to reduce their stocks. One or two sellers reported a fair demand for certain grades but the trade generally, reported the market dull.

Crude scale waxes moved down to 2.625 cents as the low asking prices in both markets with quotations for white crude scale ranging up to 2.75 cents. Some of the trade were of the opinion this price might be shaded to 2.60 cents f.a.s. New York harbor, from Pennsylvania but there were no orders placed at that figure as far as could be learned.

The lower prices for crude scale waxes stimulated a fair amount of activity. One seller estimated that approximately 1000 tons had been sold to the United Kingdom for March and April delivery at current quotations. He sold 290 tons for movement during that period, he reported. Small lots of white crude scale also sold to domestic users within the current price ranges.

One sale was reported at 2.50 f.a.s. New York, which according to the trade, was made by a dealer who was forced to cover a short sale. United Kingdom buyers were bidding 2.95 cents c.i.f. which figures approximately 2.55 cents f.a.s. New York. As far as could be learned there were no transactions made at that price.

Fully refined waxes were in much the same position as white crude scale; prices for several grades were lower and there was little demand. One large refiner at New York reported a fair demand for 125-127 A.m.p. from the domestic trade but said that foreign buyers were uninterested in purchasing. The general price for this grade was 3.75 cents f.a.s. the Gulf and 3.75 to 3.875 cents at New York, although one or two dealers believed these prices might be shaded on with a firm offer.

Prospects for wax markets in the immediate future were puzzling to most traders; some believed prices would go lower while others felt a period of fairly active buying would result in higher prices. Those who ventured the latter opinion believed there would be a considerably better demand from domestic consumers shortly. Buying from domestic consumers dropped off materially during January, the trade said. Their stocks were said to be extremely low at the present time.

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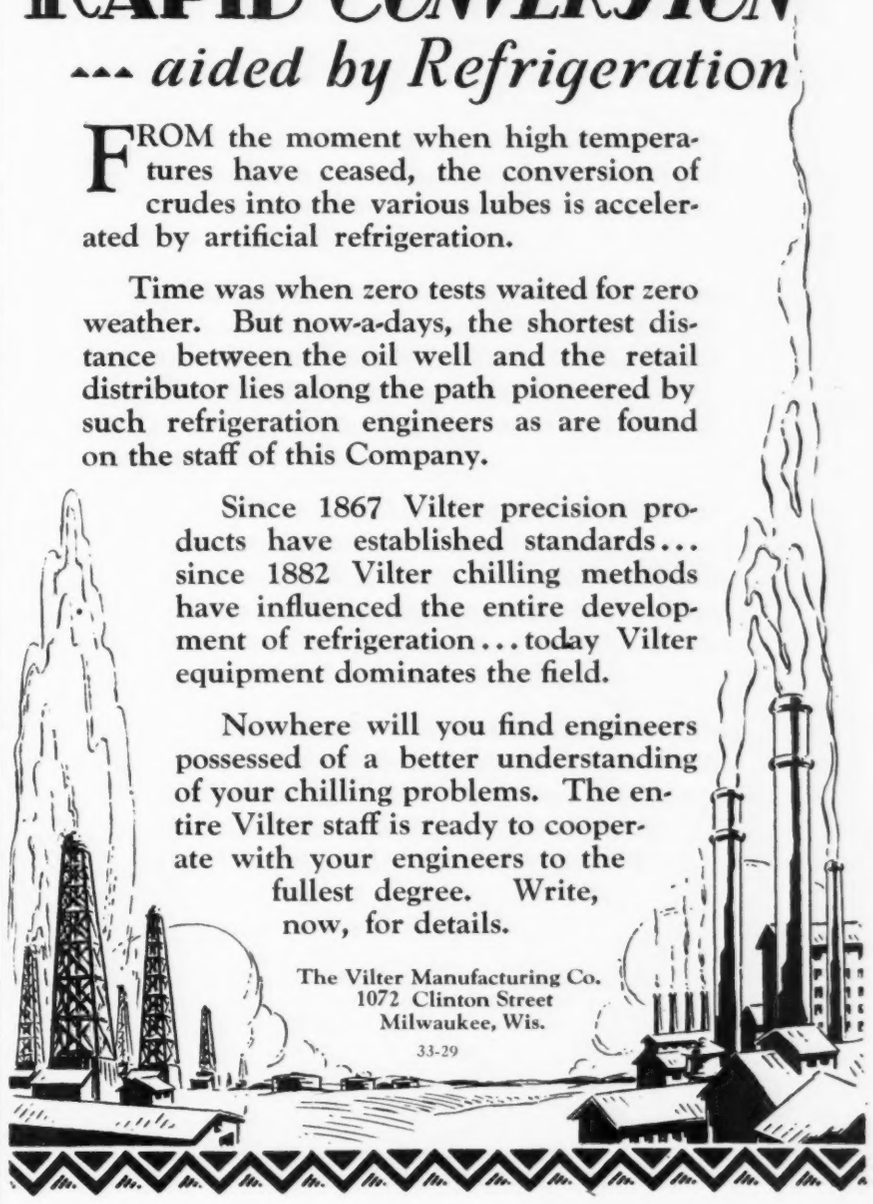

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Complete Seaboard Market

(Export Markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the whole year)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of quotations.)

U. S. MOTOR GASOLINE	Mar. 24	Mar. 17	Mar. 10
New York harbor	†7.75 – 8.50	7.75 – 8.00	7.75 – 8.00
Portland district	*9.30	*9.30	*9.30
Boston district	*9.00	*9.00	*9.00
Providence district	*9.00	*9.00	*9.00
Philadelphia district	8.25	8.25	8.25 – 8.50
Baltimore district	8.25 – 8.50	8.25 – 8.50	8.25 – 8.50
Norfolk district	8.25 – 8.50	8.25 – 8.50	8.25 – 8.50
Charleston district	8.25 – 8.50	8.25 – 8.50	8.25 – 8.50
Savannah district	8.25 – 8.50	8.25 – 8.50	8.25 – 8.50
Jacksonville district	8.25 – 8.50	8.25 – 8.50	8.25 – 8.50
CALIFORNIA, U. S. MOTOR GASOLINE			
New York harbor	†8.50 – 8.75	8.50	8.50
Philadelphia district	8.25 – 8.50	8.25 – 8.50	8.50
Baltimore district	8.50	8.50	8.50
WATER WHITE KEROSENE			
New York harbor	7.25 – 7.75	7.25 – 7.75	7.25 – 7.75
Philadelphia district	7.25 – 7.75	7.25 – 7.75	7.50 – 7.75
Baltimore district	7.25 – 7.75	7.25 – 7.75	7.50 – 7.75
GAS OIL: 28-34 Gravity			
New York harbor	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25
Boston district	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25
FURNACE OIL: 36-40 Gravity			
New York harbor	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
Boston district	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
GRADE C BUNKER OIL (Lighterage 5c per bbl. additional)			
New York Harbor	$1.05	$1.05	$1.05
Boston district	$1.05	$1.05	$1.05
DIESEL OIL			
New York harbor	$2.00 –$2.10	$2.00 –$2.10	$2.00 –$2.10

Note: Above gasoline prices do not include inspection tax levied in some states
*Minimum delivered. †Nominal. **Delivered prices.

New York Export Market

(Lubricating oils are per gal. in bbls. F.a.s. New York)

	Mar. 24	Mar. 17	Mar. 10
CYLINDER OILS (Pennsylvania Products)			
Bright stock, dark	45.50 –47.00	45.50 –47.00	45.50 –47.00
600 D filtered	38.75 –40.00	38.75 –40.00	38.75 –40.00
600 Warren E filtered	35.00 –37.00	35.00 –37.00	35.00 –37.00
600 s.r. unfiltered	29.50 –31.00	29.50 –31.00	29.50 –31.00
650 s.r. unfiltered	36.00 –37.00	36.00 –37.00	36.00 –37.00
600 flash, s.r.	38.00 –40.00	38.00 –40.00	38.00 –40.00
630 flash, s.r.	43.00 –44.00	43.00 –44.00	43.00 –44.00
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	20.00 –21.00	20.00 –21.00	20.00 –21.00
250 vis. No. 6 color	17.50 –18.50	17.50 –18.50	17.50 –18.50
200 vis. No. 6 color	16.50 –17.50	16.50 –17.50	16.50 –17.50
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¼ color	23.00 –24.00	23.00 –24.00	23.00 –24.00
180 vis. No. 3¼ color	19.00	19.00	19.00
100 vis. No. 2¼ color	15.50 –16.00	15.50 –16.00	15.50 –16.00
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	30.00	30.00	30.00
500 vis. No. 6½ color	26.50 –27.50	26.50 –27.50	26.50 –27.50
400 vis. No. 7¼ color	23.00 –25.00	23.00 –25.00	23.00 –25.00
300 vis. No. 6 color	20.00 –22.00	20.00 –22.00	20.00 –22.00
200 vis. No. 6 color	18.00 –20.00	18.00 –20.00	18.00 –20.00

Wax Markets

(Prices in cents per pound, A.S.T.M. tests; A.M.P.)

NEW YORK (F.a.s. carload lots)

	Mar. 24	Mar. 17	Mar. 10
124-126 Yellow crude scale	2.625	2.75	2.875– 3.00
122-124 White crude scale	2.625– 2.75	2.75 – 2.875	2.875– 3.00
124-126 White crude scale	2.625– 2.75	2.75 – 2.875	2.875– 3.00
123-125 Fully refined	3.50 – 3.625	3.75 – 4.00	4.00 – 4.125
125-127 Fully refined	3.75 – 3.875	3.875– 4.00	4.00 – 4.25
128-130 Fully refined	4.00 – 4.25	4.25	4.25 – 4.50
130-132 Fully refined	4.50	4.50	4.50 – 4.75
133-135 Fully refined	5.00 – 5.25	5.375– 5.50	5.50 – 5.75
135-137 Fully refined	5.50 – 5.75	5.75	5.75 – 6.00
NEW ORLEANS (F.a.s. carload lots)			
124-126 Yellow crude scale	2.625	2.75	2.875
122-124 White crude scale	2.625– 2.75	2.75 – 2.875	2.875– 3.00
124-126 White crude scale	2.625– 2.75	2.75 – 2.875	2.875– 3.00
123-125 Fully refined	3.50	3.75 – 3.875	3.875– 4.00
125-127 Fully refined	3.75	3.875– 4.00	4.00
128-130 Fully refined	3.875– 4.125	4.125	4.125
130-132 Fully refined	4.375	4.375	4.375
133-135 Fully refined	5.00 – 5.25	5.50	5.50

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. or more unless otherwise noted and for export shipment only).

GASOLINE	Mar. 24	Mar. 17	Mar. 10
U. S. Motor	8.00	8.00	8.00
60-62, 400 e.p.	9.00	9.00	9.00
61-63, 390 e.p.	9.25	9.25	9.25
64-66, 375 e.p.	9.50	9.50	9.50
U. S. Motor, cases (cargoes)	$1.85	$1.85	$1.85
64-66, cases (cargoes)	$2.05	$2.05	$2.05

KEROSENE	Prices Mar. 24	Prices Mar. 17	Prices Mar. 10
44 water white	7.00	7.00	7.00
41-43 prime white	6.00	6.00	6.00
Water white, cases (cargoes)	$1.85	$1.85	$1.85
Prime white, cases (cargoes)	$1.75	$1.75	$1.75
DOMESTIC GAS & BUNKER OILS			
*26-30 translucent gas oil	3.625– 3.875	3.625– 3.875	3.875– 4.00
*30 plus translucent gas oil	3.875– 4.125	3.875– 4.125	4.00 – 4.25
Grade C bunker oil	$0.95	$0.95	$0.95
Grade C bunker oil, cargoes	$0.70	$0.68 –$0.70	$0.68 –$0.70

*Less than ½ of 1% sulphur.

MEXICAN CRUDE AND BUNKER OILS (F. O. B. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid	$0.70 –$0.75	$0.70 –$0.75	$0.70 –$0.75
Grade C bunker oil for bunkering purposes, taxes paid	$1.00	$1.00	$1.00

SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F. cold test 0. Tanker, f. o. b. Houston)			
100 vis. No. 2 unfiltered pale	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
200 vis. No. 3 unfiltered pale	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
300 vis. No. 3 unfiltered pale	8.875– 9.50	8.875– 9.50	8.875– 9.50
500 vis. No. 3½ unfiltered pale	10.25 –11.25	10.25 –11.25	10.25 –11.25
750 vis. No. 4 unfiltered pale	12.50 –12.75	12.50 –12.75	12.50 –12.75
1200 vis. No. 5 unfiltered pale	16.00 –18.00	16.00 –18.00	16.00 –18.00
200 vis. No. 5-6 red oil	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25
300 vis. No. 5-6 red oil	8.375– 8.50	8.375– 8.50	8.375– 8.50
500 vis. No. 5-6 red oil	9.25 – 9.50	9.25 – 9.50	9.25 – 9.50
750 vis. No. 5-6 red oil	11.50	11.50	11.50
1200 vis. No. 5-6 red oil	15.00 –15.25	15.00 –15.25	15.00 –15.25

Gulf Domestic Market

(Prices are f.o.b. Gulf oil terminals in Texas and Louisiana in shipments of 20,000 bbls. or more, representing sellers' opinions, for domestic shipment only).

	Mar. 24	Mar. 17	Mar. 10
U. S. Motor gasoline	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125
41-43 w.w. kerosene	5.875– 6.25	5.875– 6.25	5.875– 6.25
*26-32 translucent gas oil	3.875– 4.125	3.875– 4.125	3.875– 4.125

*Less than ½ of 1% sulphur.

†Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	Mar. 24	Mar. 17	Mar. 10
Gasoline, U. S. Motor, 53-55 Gravity	6.00 – 7.00	6.00 – 7.00	6.25 – 7.00
Gasoline, U. S. Motor-blends and special cuts	7.25 –10.00	7.25 –10.00	7.25 –10.00
Gas Oil, 30-34, per barrel	$0.80 –$1.05	$0.80 –$1.05	$0.80 –$1.05
Diesel Oil, 27 plus, per barrel	$0.75 –$1.00	$0.75 –$1.00	$0.75 –$1.00
Bunker oil, 14-18, per barrel	$0.65 –$0.85	$0.65 –$0.85	$0.65 –$0.85
Fuel oil, 14-18 per barrel	$0.60 –$0.85	$0.60 –$0.85	$0.60 –$0.85
Kerosene, 38-40 w.w., 125-150 flash, per gal.	5.00 – 6.00	5.00 – 6.00	5.00 – 6.00
Cased Goods			
Gasoline, U. S. Motor	$1.75 –$1.85	$1.75 –$1.85	$1.75 –$1.85
Kerosene, 38-40 w.w., 125, 150 flash	$1.45 –$1.50	$1.45 –$1.50	$1.45 –$1.50

†**Note:** Above Pacific Export market prices for gasoline and kerosene in cargo lots apply only on goods for coastwise shipment. Gasoline and kerosene prices for shipment to foreign ports are determined as follows: Difference in freight between U. S. Gulf to European Continent and California to European Continent —this difference plus 0.125c for handling, deducted from prices posted at U. S. Gulf by the Export Petroleum Assoc., Inc., which are above prices.

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling; to American ports, cents per barrel.)

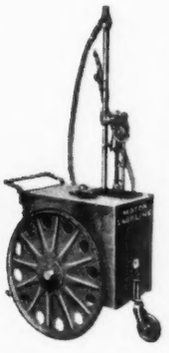
	Mar. 24 Crude &/or Fuel	Mar. 24 Refined Oil &/or Spirits
Calif. to U. K. or Continental ports*	35-40	50-55
Gulf to U. K. or Continental ports*	26-28	37/6-40
North Atlantic to U. K. or Continental ports*	23/6-25	34/6-37
Calif. to North Atlantic ports (not E. of N. Y.)	$1.00-$1.05	$0.90–$1.00
Gulf to North Atlantic ports (not E. of N. Y.)**	33-36	36-40

*Continental ports in the range between Bordeaux and Hamburg, both inclusive.

**Venezuela loading same rate. For Tampico 3c to 4c per bbl. additional.

NOW G & B HIGH QUALITY PUMPS

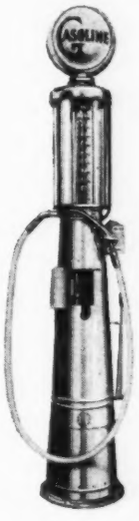
AT LOW COST PRICES



Well built Portable

A handy pump—not only for garages, accessory shops and small stations but for super service stations as well. Large reinforced steel wheels with rubber tires enable the tanks to be moved about easily. Saves time and labor of "shuffling" cars.

Tank of heavy gauge steel holds 50 gals. Provided with gauge and locking fill cover. Pump is equipped with discharge dial and totalizing meter. Send coupon for more complete details and prices.



Sight Measure Nozzle Control

This G & B T-176 has many confidence-building, money-making features. Ample advertising space. Displays colored or white gas to best advantage because of its uncovered NULTRA *Solex* glass bowl. Nozzle control brings in many extra sales.

If you want to know more about G & B "wet hose" visibles fill in the coupon below.

Steady Low-Priced Barrel Pumps

All working parts of this G & B barrel pump are strongly constructed and entirely enclosed and protected. The nozzle delivers oil in a smooth, clear flow. No after drip. Self measuring, quart size. Fits any 1½" or 2" opening without using extra fittings. Meter counting to 100,000 quarts optional, fitted at factory. Send coupon for latest catalog.

GILBERT AND BARKER MANUFACTURING COMPANY

PUMPS AND TANKS FOR THE OIL TRADE

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MAIL THIS COUPON TODAY

GILBERT & BARKER MFG. CO.
SPRINGFIELD, MASS. N.P.N.3

Please send me, without obligation on my part, by return mail, your catalog featuring entire line of dependable pumps. I am interested particularly in.....type pumps.

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CITY.....STATE.....

"DEPENDABLE PUMPS—FOR EVERY SERVICE STATION NEED"

Tank Wagon, Service Station Markets for Gasoline and Kerosene

(OIL PRICE HANDBOOK has t. w. and s. s. markets for a whole year, arranged for quick reference)

These Prices in Effect Mar. 24, 1930, as Posted by Principal Marketing Companies

S.O. NEW JERSEY TERRITORY

	Gasoline		Total		Oil
	T.W.	Tax	T.W.	S.S.	T.W.
Atlantic City, N. J.	14.5	2	16.5	18.5	13.5
Newark, N. J.	13.5	2	15.5	17.5	12.5
Annapolis	14	4	18	20	13
Baltimore, Md.	13.2	4	17.2	19.2	10.5
Cumberland, Md.	15	4	19	21	14
Washington, D. C.	13.7	2	15.7	17.7	12.7
Danville, Va.	14.8	5	19.8	21.8	13.8
Norfolk, Va.	13.3	5	18.3	20.3	11
Richmond, Va.	13.7	5	18.7	20.7	12.7
Roanoke, Va.	15	5	20	22	14
Petersburg, Va.	14.3	5	19.3	21.3	13.3
Charleston, W. Va.	14.5	4	18.5	20.5	12.5
Keyser, W. Va.	15.1	4	19.1	21.1	14.1
Parkersburg, W. Va.	13.2	4	17.2	19.2	11.2
Wheeling, W. Va.	14.4	4	18.4	20.4	12.4
Charlotte, N. C.	15.3	5	20.3	22.3	14.3
Hickory, N. C.	15.8	5	20.8	22.8	14.8
Mt. Airy, N. C.	15.5	5	20.5	22.5	14.5
Salisbury, N. C.	15.7	5	20.7	20.7	14.7
Charleston, S. C.	13.3	6	19.3	21.3	12.3
Columbia, S. C.	15.2	6	21.2	23.3	14.2

Note: 2c per gallon discount off t.w. price of gasoline to dealers and commercial consumers thru S. O. New Jersey territory.

CONTINENTAL OIL

Denver, Colo.	12	4	16	18	15.5
Pueblo, Colo.	14	4	18	19	15.5
Grand Junc., Colo.	18	4	22	25	19
Casper, Wyo.	14	4	18	21	14
Cheyenne, Wyo.	15.5	4	19.5	22.5	15.5
Butte, Mont.	18.5	5	23.5	26.5	20
Helena, Mont.	18.5	5	23.5	26.5	20
Salt Lake City, Utah	16.5	3½	20	20	17
Boise, Ida.	18.5	5	23.5	26.5	19
Twin Falls, Ida.	18.5	5	23.5	26.5	19
Albuquerque, N. M.	15	5	20	22	17

S. O. CALIFORNIA

				*Plant	
Phoenix, Ariz.	14	4	18	22	20
Los Angeles, Cal.	16.5	3	19.5	22.5	15.5
Fresno, Cal.	17	3	20	23	17
San Francisco, Cal.	17	3	20	23	15.5
Reno, Nev.	21	4	25	28	19
Portland, Ore.	15.5	4	19.5	22.5	16.5
Seattle, Wash.	15.5	3	18.5	21.5	16.5
Spokane, Wash.	19.5	3	22.5	25.5	20.5
Tacoma, Wash.	15.5	3	18.5	21.5	16.5

Note: 4c per gal. discount to dealers off t.w. price of gasoline to customers taking tank truck delivery, thru S. O. California territory except 1c discount at Phoenix to dealers only.

*Prices in the fourth column represent retail sale prices of gasoline for delivery into fuel tanks of customers' automotive equipment at S. O. California refineries, terminals and district depots as this company operates no retail service stations.

S. O. LOUISIANA

Little Rock, Ark.	11	5	16	18	13
Alexandria, La.	‡12	4	‡16	18	†14
Baton Rouge, La.	11	4	15	15	†14
Lake Charles, La.	††12	4	††16	††18	†14
New Orleans, La.	*11	4	*15	15	†12
Shreveport, La.	11	4	15	17	†14
Lafayette, La.	**13	4	**17	**19	†14
Bristol, Tenn.	14	5	19	21	14
Chattanooga, Tenn.	14	5	19	20	13
Knoxville, Tenn.	14	5	19	20	16
Nashville, Tenn.	13	5	18	20	16
Memphis, Tenn.	12	5	17	19	12.5

Note: 2c per gallon discount off t.w. price of gasoline to dealers thru S. O. Louisiana territory.

*New Orleans gasoline prices include 1c parish tax in addition to 4c state tax, and kerosene prices include 1c state tax and 1c parish tax.

†Kerosene price in Louisiana includes 1c state tax.

**Lafayette gasoline prices include 1c parish tax n addition to 4c state tax.

††Lake Charles gasoline prices include 1c parish tax.

‡Alexandria gasoline prices include 1c parish tax

S. O. KENTUCKY

Ashland, Ky.	15	5	20	21	15
Catlettsburg, Ky.	15	5	20	21	15
Lexington, Ky.	13	5	18	20	14.5
Louisville, Ky.	14	5	19	21	13
Covington, Ky.	14	5	19	20	14.5
Clarksdale, Miss.	13	5	18	20	12.5
Gulfport, Miss.††	15.5	5	20.5	22.5	13
Jackson, Miss.	14	5	19	21	13
Natchez, Miss.	13.5	5	18.5	20.5	13
Vicksburg, Miss.	13.5	5	18.5	20.5	13
Birmingham, Ala. ‡‡	16	4	20	22	14.5
Mobile, Ala‡	13	4	17	17	13.5
Montgomery, Ala.*	16	4	20	22	15
Atlanta, Ga.	14	6	20	22	†15.5
Augusta, Ga.	15	6	21	23	†15.5
Macon, Ga.	15	6	21	23	†14

Latest Changes in Tank Wagon Prices

Gasoline

S. O. New York—T.w. and s.s. cut 2c, Syracuse, to 13.8c and 15.8c, **Mar. 22.**

S. O. Kentucky—S.s. only cut 2c, Mobile, to 17c, same as t.w. **Mar. 19.**

S. O. Ohio—T.w. and s.s. cut 2c, Athens county, both to 15c, **Mar. 19.**

S. O. Louisiana—S.s. only cut 1c, Knoxville and Chattanooga, both to 20c, t.w. remaining unchanged at 19c, **Mar. 17.**

S.s. only up 1c, Bristol, to 21c, t.w. remaining unchanged at 19c, **Mar. 20.**

Continental Oil—S.s. only cut 3c, Salt Lake City, to 20c, same as t.w., **Mar. 15.**

Magnolia Petroleum—T.w. and s.s. cut 2c, Texarkana, to 15c and 17c, **Mar. 15.**

S. O. Indiana — Correction: Q.D.A. changes on gasoline on Feb. 12 in Chicago were 4½c per gallon off service station price in quantities of 50,000 gallons or more a month; and 5c off for quantities of 75,000 gallons or more a month.

	Gasoline		Total		Oil
	T.W.	Tax	T.W.	S.S.	T.W.
Savannah, Ga.	14	6	20	22	†14
Jacksonville, Fla.	14	6	20	22	14
Miami, Fla.	15	6	21	23	14
Tampa, Fla.	14	6	20	22	13
Pensacola, Fla.**	12	6	18	20	13.5

Note: Net price of gasoline to dealers is 2c under posted t.w. price thru S. O. Kentucky territory.

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included.

†Georgia kerosene prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

‡Mobile gasoline prices include 1c city tax

‡‡Birmingham gasoline prices include 1c city tax.

S. O. NEBRASKA

Omaha, Neb.	14.25	4	18.25	20.25	13.25
McCook	15.75	4	19.75	21.75	14.75
Norfolk	14.75	4	18.75	20.75	13.75
North Platte	15.75	4	19.75	21.75	14.50
Scottsbluff	15.75	4	19.75	21.75	14.25

S. O. INDIANA

Chicago, Ill.	14	3	17	18	13
Decatur, Ill.	14.2	3	17.2	18.2	13.1
E. St. Louis, Ill.	13.4	3	16.4	17.4	12.2
Joliet, Ill.	14.4	3	17.4	18.4	13.3
Peoria, Ill.	14.2	3	17.2	18.2	13.1
Quincy, Ill.	14.2	3	17.2	18.2	12.9
Indianapolis, Ind.	14.2	4	18.2	19.2	14.2
Evansville, Ind.	14	4	18	19	14
South Bend, Ind.	14.4	4	18.4	19.4	14.4
Detroit, Mich.	14.8	3	17.8	18.8	14.7
Grand Rapids, Mich.	14.7	3	17.7	18.7	14.6
Saginaw, Mich.	14.9	3	17.9	18.9	14.8
Green Bay, Wisc.	14.6	2	16.6	17.6	13.4
Madison, Wisc.	14.3	2	16.3	17.3	13.1
Milwaukee, Wisc.	14.1	2	16.1	17.1	12.9
La Cross, Wisc.	15.2	2	17.2	18.2	14
Minneapolis, Minn.	15.2	3	18.2	19.2	13.9
Duluth, Minn.	15.5	3	18 5	19.5	13.9
Mankato, Minn.	15.1	3	18.1	19.1	13.7
Des Moines, Ia.	14.5	3	17.5	18.5	13.3
Davenport, Ia.	14.5	3	17.5	18.5	13.3
Sioux City, Ia.	14.1	3	17.1	18.1	12.9
Mason City, Ia.	14.5	3	17.5	18.5	13.3
St. Louis, Mo.	*13.9	2	15.9	16.9	12.3
Kansas City, Mo.	†14.9	2	16.9	17.9	11.6
St. Joseph, Mo.	†14.5	2	16.5	17.5	12.2
Fargo, N. D.	16.9	3	19.9	20.9	15.9
Grand Forks, N. D.	17.2	3	20.2	21.2	16.2
Minot, N. D.	16.9	3	19.9	20.9	15.9
Pierre, S. D.	15	4	19	20	14.4
Huron, S. D.	15.3	4	19.3	20.3	14.7
Wichita, Kans.	12.8	3	15.8	14.8	11.8
Bartlesville, Okla.	12.5	4	16.5	17.5	11.5

S. O. Indiana's quantity contract price schedule thru territory (except in Chicago and Detroit, which see below) on tank truck deliveries of gasoline, figured from the service station price is 2c for 500 gals. or more a month; 2½c for 2,000 gals. or more a month; 3c for 6,000 gals. or more a month; and 4½c for 100,000 gals. or more a month.

In Chicago and vicinity, these discounts apply: Over 500 gals. per month, 2c per gal. off service station price; over 1,000 gals. per month, 4c per gal. off service station price; over 50,000 gals. per month, 4½c per gal. off s. s. price; over 75,000 gals., 5c off.

In Detroit, dealers and consumers signing contract for all gasoline for one year, get 4c per gal. off s.s. price. Non-contracted accounts get 3c off s.s. price. Those buying 100,000 gals. or more a month, 4½c per gal. off s.s. price.

*Includes city tax of ½c.

†Includes city tax of 1c.

S. O. OHIO

Ohio state-wide.	14	4	18	19	12
†Darke, Hancock, Preble and Scioto Counties.	13	4	17	17	†12
Athens County	11	4	15	15	12

Note: Discount to dealers and commercial accounts generally thru Ohio is 2c per gal. off t.w. price with some exceptions. In counties where prices are below normal, discount is 3c per gal. off t.w. price.

†Kerosene t.w. price in Darke County is 10c; in Paulding County 11c.

MAGNOLIA PETROLEUM

Muskogee, Okla.	10	4	14	16	10
Oklahoma City	11	4	15	18	10
Tulsa, Okla.	11	4	15	19	10
Fort Smith, Ark.†	10	†4	14	16	12
Little Rock, Ark.	13	5	18	18	13
Texarkana, Ark.*	11	*4	15	17	12
Dallas, Tex.	12	4	16	20	12
Fort Worth, Tex.	12	4	16	19	12
Houston, Tex.	11	4	15	19	11
San Antonio, Tex.	11	4	15	19	11
El Paso, Tex.	12	4	16	20	14

*Within city of Texarkana, the state tax on gasoline is 4c per gal. conforming with the Texas state tax. In this district outside of the city the 5c Arkansas tax applies.

†Within city of Fort Smith, Oklahoma tax of 4c applies. In this district outside of the city, the 5c Arkansas tax applies.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

Greater New York City: Boroughs of Manhattan, Bronx, Queens & Kings	12.3	2	14.3	16.3	11.3
Borough of Richmond	12.7	2	14.7	16.7	11.7
Albany, N. Y.	13.6	2	15.6	17.6	12.6
Buffalo, N. Y.	12.8	2	14.8	16.8	11.8
Rochester, N. Y.	13	2	15	17	12
Syracuse, N. Y.	11.8	2	13.8	15.8	12.8
Boston, Mass.	12.5	2	14.5	16.5	11.5
Augusta, Me.	13.8	4	17.8	19.8	12.8
Manchester, N. H.	13.4	4	17.4	19.4	12.4
Burlington, Vt.	14.3	4	18.3	20.3	13.3

Note: S. O. New York allows 3c off t.w. price to dealers in New York City, and 2c off t.w. price thru rest of territory.

ATLANTIC REFINING

Pittsburgh, Pa.	15	*	15	21	13
Philadelphia, Pa.	15	*	15	21	13
Allentown, Pa.	15	*	15	21	13
Erie, Pa.	15	*	15	19	13
Scranton, Pa.	15	*	15	21	13
Altoona, Pa.	15	*	15	21	13
Dover, Del.	15	3	18	20	13
Wilmington, Del.	15	3	18	20	13

Above prices include these inspection fees on both gasoline and kerosene, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosene; Arkansas, 1/20c on both Florida, 1/8c on both; Georgia, 1/10c on both; Illinois, 3/100c on both; Indiana, 4/25c to 1/2c on both; Kansas, 3/50c on both; Louisiana, 1/32c on gasoline; Minnesota, 3/50c on both; Missouri, 3/10c to 1/2c on both; Nebraska, 3/100c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina, 1/8c on both; South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and 1/2c to 4/5c on kerosene; Wisconsin, 3/50c on both.

Kerosene inspection fees only, per gallon; Iowa, 7/100c; Michigan 1/5c to 4/5c per gal.

Tank Wagon, Service Station Markets for Gasoline and Kerosene

Prices in Effect Mar. 24, 1930

ATLANTIC REFINING

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Boston, Mass.	12.5	2	14.5	16.5	11.5
Springfield, Mass.	13.5	2	15.5	17.5	12.5
Worcester, Mass.	13.3	2	15.3	17.3	12.3
Fall River, Mass.	13.1	2	15.1	17.1	12.1
Providence, R. I.	12.7	2	14.7	16.7	11.7
Hartford, Conn.	13.5	2	15.5	17.5	12.5
New Haven, Conn.	13.6	2	15.6	17.6	12.6
Atlantic City, N. J.	14.5	2	16.5	18.5	13.5
Camden, N. J.	13.6	2	15.6	17.6	12.6
Trenton, N. J.	14	2	16	18	13
Annapolis, Md.	14	4	18	20	13
Baltimore, Md.	13.2	4	17.2	19.2	10.5
Hagerstown, Md.	14.7	4	18.7	20.7	13.7
Richmond, Va.	13.7	5	18.7	20.7	12.7
Wilmington, N. C.	13.4	5	18.4	20.4	12.4
Brunswick, Ga.	14	6	20	22	**15
Jacksonville, Fla.	14	6	20	22	14

Note: 2c per gal. discount off t.w. price of gasoline on sales to dealers; discount to commercial accounts under contract for one year in accordance with Code of Ethics.

*4-cent state tax is collected by retail dealer and paid by him directly to state.

**Georgia kerosene prices include 1c state tax.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	14.7	16.7	17
Detroit	17.4	18.9	20.7
Kansas City	†15.9	†17.4	†19.2
Milwaukee	16.4	*19.9	*21.7
Minneapolis	**20.7	**22.2	**24
St. Louis	15.6	17.1	18.9
New York		16	23
Boston		19	23

*Includes 2c state tax. †Includes 1c city tax.
**Includes 3c state tax.

Petroleum Spirits (Solvent)

Tank Cars (F.o.b. refinery or seaboard terminal)

New York harbor	11.00
Philadelphia district	11.00
Providence	11.50

Tank Wagon or Steel Barrels

New York City	18
Syracuse	18
Rochester	18
Buffalo	18
Providence	19
Boston	19
Bridgeport	16–18
Newark	18
Philadelphia	16
Baltimore	18

Note: 2c off above t.w. prices to large buyers in some instances.

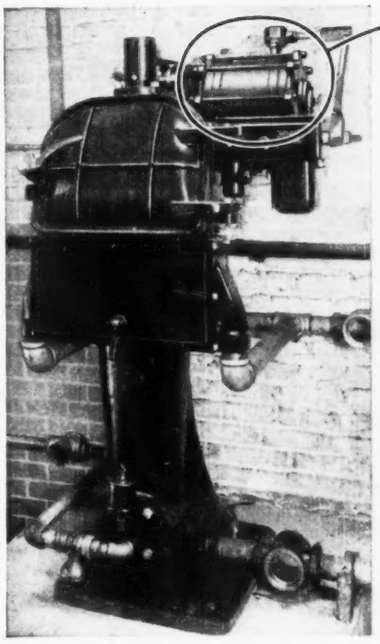
CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

ONTARIO	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Toronto	19.5	5	24.5	28	20.5
Ottawa	19.5	5	24.5	28	20.5
North Bay	22.5	5	27.5	33	27
Ft. William	22.5	5	27.5	31	22.5
Border Cities, including Windsor	18.5	5	23.5	27	19.5
MANITOBA					
Winnipeg	21.5	3	24.5	28	21.5
SASKATCHEWAN					
Regina	26	3	29	33	26
ALBERTA					
Edmonton	27.5	5	32.5	36	27.5
Calgary	23.5	5	28.5	32	23.5
BRITISH COLUMBIA					
Vancouver	23	3	26	30	24
QUEBEC					
Montreal	20.5	5	25.5	29	21.5
Quebec City	21.5	5	26.5	30	22.5
Three Rivers	21.5	5	26.5	30	22.5
NEW BRUNSWICK					
St. John	22	5	27	31	24
Moncton	22	5	27	31	24
NOVA SCOTIA					
Halifax	22	5	27	31	24
PRINCE EDWARD ISLAND					
Charlottetown	22	5	27	31	24

Note: In districts surrounding these points 1c additional is added to city price.

When This Motor Goes In, Your Plant *Factor-of-Safety* Goes Up!



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You can install Type E motors anywhere in the refinery or natural gasoline plant with the assurance that you are increasing your plant factor of safety—because these motors are specially built to eliminate all conceivable fire hazards of electric motors operating in explosive atmospheres—a fact clearly shown by the exhaustive and severe explosion tests made by Underwriters' Laboratories before granting their approval.

Underwriters' tests, and the special construction features of Louis Allis "Explosion-Proof" motors, are fully described in a new 12-page bulletin which is just off the press. A copy will be sent, without obligation, upon receipt of your request.

Write for Bulletin 508

WARNING to REFINERS

Do not confuse the Louis Allis "EXPLOSION-PROOF" motor with so-called "vapor-proof" motors. Real "EXPLOSION-PROOF" motors must be specially constructed and must pass severe explosion tests to be approved by Underwriters' Laboratories for use in explosive atmospheres.

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Trucks

and trailers—their operation and maintenance—how they lower oil transportation costs and how to sell from the truck seat—31 articles have been devoted exclusively to truck operation in the oil industry in past 15 months' issues of National Petroleum News. They are listed here for your file reference:

1930

Tank truck salesmen, know your products and territory! March 19, p. 171
Redesigning truck mountings to reduce dead-weight March 19, p. 182
What's new in trucks, truck tanks and trailers March 19, p. 231
Aluminum tanks and semi-trailers to be given hill tests March 12, p. 28
Advantages of tractor-trailers told to jobbers March 5, p. 27
Tank truck as advertising medium Feb. 26, p. 34
Safety of aluminum for tanks to be investigated Feb. 12, p. 82
Station sales boosted thru road service truck Feb. 5, p. 88
Trucking gasoline in Mid-Continent cheaper than rail Jan. 29, p. 71
Serviceability of aluminum truck tanks demonstrated Jan. 1, p. 29

1929

How aluminum truck tank cuts weight, and increases payload Dec. 25, p. 39
How large marketer saves 10c per gallon by truck hauling Dec. 25, p. 122
How semi-trailers are applied to oil hauling Dec. 18, p. 87
Advantages of six-wheel trucks for oil hauling Dec. 18, p. 91
Standard truck dimensions proposed by A.P.I. Dec. 11, p. 29
Potential mileage as basis for truck replacement Dec. 11, p. 113
Country truck drivers buy from bulk plant Dec 11, p. 114
Notary Public truck driver improves collections Nov. 27, p. 108
New York truck drivers' strike ends; unions not recognized Oct. 23, p. 26
High speed truck serves exclusive district Oct. 9, p. 95
Salesmanship from the truck seat Aug. 14, p. 101
Business science cuts oil hauling cost in distribution, truck man says Aug. 7, p. 89
Refiner delivers liquefied gas by tank wagon July 10, p. 80
Competitive truck-trailer tests conducted in Pennsylvania hills July 3, p. 31
N. Y. approves Smith-Hamburg-Scott truck tank June 19, p. 108
Keeps warm oil to save truck time June 12, p. 108
Tests of hill climbing of loaded trucks May 15, p. 93
Two small trailers deliver 6986 gals. a day May 1, p. 40-h
Light truck tractors for oil given hard road tests Apr. 24, p. 32
Trucks 1,000,000 gals. gasoline per month from 1 bulk station March 20, p. 114
Trucks speeding cause accidents Jan. 30, p. 45

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National Petroleum News
Main Office: 1213 West Third St
Cleveland, Ohio

Crude Oil Prices (in Effect March 24, 1930)

(Crude prices for the whole year in OIL PRICE HANDBOOK published annually)

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

(All Penna. Grade Crude Effective Feb. 17, 1930)

†Bradford—Alleghany district $3.00
Bradford District Oil in New York Transit Lines (Bradford District) ..... ††$2.75
Bradford District Oil in National Transit Lines (Bradford District) ..... ††2.75
Penna. Grade Oil in National Transit Lines (Other Pennsylvania) *2.80
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania) 2.75
Penna. Grade Oil in Eureka Pipe Lines (West Virginia) 2.65
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district) 2.45
Wayne district crude in Cumberland lines (West Virginia) 1.24
Corning Grade in Buckeye Pipe Lines (Ohio) (Effective Feb. 17, 1930) 1.65
Corning, O., heavy grade (Effective Feb. 17, 1930) 1.55
Somerset Oil in Cumberland Pipe Lines (Kentucky) (Effective Feb. 17, 1930) 1.37
Somerset Oil in Eureka Pipe Lines (Effective Feb. 17, 1930) 1.21
Ragland Grade in Cumberland Pipe Lines (Kentucky) (Effective Jan. 29, 1929) $0.60

*Oil run prior to July 1, 1929 is $2.75 per bbl.
†Posted by Tide Water Pipe Co., Ltd.
††Oil run prior to July 1, 1929 is $2.70 per bbl.

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines (Effective Feb. 19, 1930) $1.45

MICHIGAN

(Posted by Dixie Oil Co.)

Traverse and Dundee (Muskegon):

32-32.9	$1.08	39-39.9	$1.29
33-33.9	1.11	40-40.9	1.32
34-34.9	1.14	41-41.9	1.35
35-35.9	1.17	42-42.9	1.38
36-36.9	1.20	43-43.9	1.41
37-37.9	1.23	44 and above	1.44
38-38.9	1.26		

(Posted by Pure Oil Co.)

Midland, Midland County $1.25

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Effective Feb. 15, 1930

Wooster	$1.75	Princeton	$1.60
Lima	1.65	Illinois	1.60
Waterloo	1.20	Plymouth	1.18
Indiana	1.42	West Kentucky	1.50

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.

Petrolia $2.05
Oil Springs 2.12

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co.

(In Oklahoma, Kansas, North and East Central Texas)

Effective Feb. 15, 1930

Below 25	$0.60	35-35.9	$1 17
25 25.9	0 66	36-36.9	1.20
26-26.9	0 72	37-37.9	1.23
27-27.9	0.78	38-38.9	1.26
28-28.9	0.84	39 39.9	1.29
29-29.9	0.90	40-40.9	1.32
30-30.9	0.96	41-41.9	1.35
31-31.9	1.02	42-42.9	1.38
32-32.9	1.08	43-43.9	1.41
33 33.9	1.11	44 and above	1.44
34-34.9	1.14		

Above prices were posted by Humble and The Texas Co. on Jan. 15; on Jan. 16 by Magnolia in Texas, and Jan. 17 in Oklahoma and Kansas; and on Feb. 13 by Sinclair; by Carter Oil on Jan. 16.

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Boggy Creek, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

Humble's prices in above fields same as Prairie's, but effective Jan. 15, 1930.

Magnolia Petroleum Co.

(In Oklahoma, Kansas and North and East Central Texas)

Magnolia posts in above fields and in Panola Co., same schedule as Prairie, which see. Its postings in Texas were effective Jan. 16, and in Oklahoma and Kansas, Jan. 17, 1930.

Jan. 16, 1930, Glasscock, Crane, Upton, Winkler, Howard and Mitchell Counties same prices as Humble's postings in Winkler, Crane, etc., which see.

Iatan district	$0.93
Corsicana heavy	0.75
Luling	0.75
Mirando	0.75
Darst Creek, 60° F. gravity	1.05

Carter Oil Co.

(Oklahoma and Kansas)

Jan. 16, 1930, same schedule as Prairie, which see.

PANHANDLE, TEXAS

Humble Oil & Refining Co.

Effective Jan. 15, 1930

Hutchinson and Carson Counties:

Below 32	$0.72	38-38.9	$0.96
32-32.9	0.78	39-39.9	0.99
33-33.9	0 81	40-40.9	1 02
34-34.9	0 84	41-41.9	1 05
35-35.9	0 87	42-42.9	1 08
36-36.9	0 90	43-43.9	1.11
37-37.9	0.93	44 and above	1.14

Wheeler County:

Below 30	$0 70	37-37.9	$1 03
30-30.9	0 76	38-38.9	1 06
31-31.9	0 82	39-39.9	1 09
32-32.9	0 88	40-40.9	1 12
33-33.9	0 91	41-41.9	1 15
34-34.9	0 94	42-42.9	1 18
35-35.9	0 97	43-43.9	1.21
36-36.9	1.00	44 and above	1.24

Gray County:

Below 29	$0 69	37-37.9	$1 08
29-29.9	0 75	38-38.9	1 11
30-30.9	0 81	39-39.9	1 14
31-31.9	0 87	40-40.9	1 17
32-32.9	0 93	41-41.9	1 20
33-33.9	0 96	42-42.9	1.23
34-34.9	0 99	43-43.9	1.26
35-35.9	1.02	44 and above	1.29
36-36.9	1.05		

Above prices met by The Texas Co. on Jan. 15, and Magnolia on Jan. 16.

WEST TEXAS

Humble Oil & Refining Co.

Effective Jan. 15, 1930

Winkler, Crane, Upton, Crockett, and Pecos Counties, also Lea County, N. Mex.

Below 25	$0.55	31-31.9	$0.76
25-25.9	0.58	32-32.9	0.79
26-26.9	0.61	33-33.9	0.82
27-27.9	0.64	34-34.9	0.85
28-28.9	0.67	35-35.9	0.88
29-29.9	0.70	36 and above	0.91
30-30.9	0.73		

Howard and Glasscock counties:

Effective Jan. 15, 1930

Below 25	$0.55	31-31.9	$0.72
25-25.9	0.58	32-32.9	0.74
26-26.9	0.61	33-33.9	0.76
27-27.9	0.64	34-34.9	0.78
28-28.9	0.66	35-35.9	0.80
29-29.9	0.68	36 and above	0.82
30-30.9	0.70		

Jan. 15, 1930, The Texas Co. posted same prices in Crane, Upton, Winkler and Lea, and Magnolia, on Jan. 16, in Crane, Upton, Winkler, Glasscock, Howard and Mitchell as Humble in Winkler, Crane etc.

SOUTHWEST TEXAS

(Posted by Humble Oil & Refining Co.)

Effective Jan. 15, 1930

Mirando	$0.75
Salt Flat	1.05
Darst Creek	1.05

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton, De Soto, Sabine and **Cotton Valley.

Effective Jan. 16, 1930

Below 28	$0.78	36-36.9	$1.20
28-28.9	0 84	37-37.9	1.23
29-29.9	0 90	38-38.9	1.26
30-30.9	0.96	39-39.9	1.29
31-31.9	1.02	40-40.9	1.32
32-32.9	1.08	41-41.9	1.35
33-33.9	1.11	42-42.9	1.38
34-34.9	1.14	43-43.9	1.41
35-35.9	1.17	44 and above	1.44

**Cotton Valley, below 36, $0.80. Beginning with 36-36.9, same schedule as above.

Smackover, below 24	$0.85
do 24 and above	1.00
Bellevue (Jan. 16, 1930)	1 05
*Urania, La. (Jan. 16, 1930)	0.85
†East El Dorado	0.75

*Posted by Louisiana Oil Refining Corp.
†Posted by Magnolia Petroleum Co.

Jan. 15, 1930, The Texas Co. same schedule in Louisiana as Standard, plus these grades: 24-24.9, $0.60; 25-25.9, $0.66; 26-26.9, $0.72; 27-27.9, $0.78.

Jan. 16, Magnolia, Louisiana Oil, and Gulf Companies met Standard schedule in Louisiana-Arkansas fields.

STEPHENS, ARKANSAS

Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.

Effective Jan. 16, 1930

Below 28	$0.70	30-30.9	$0 85
28-28.9	0.75	31-31.9	0 90
29-29.9	0 80	32 and above	0 95

GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective Jan. 15, 1930

Grades A	$1.05	29-29.9	$1 05
Grades B:		30-30.9	1 08
Below 25	0.90	31-31.9	1 11
25-25.9	0.93	32-32.9	1 14
26-26.9	0.96	33-33.9	1 17
27-27.9	0.99	34-34.9	1.20
28-28.9	1.02	35 and above	1.23

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling, Pierce Junction, Sugarland and Raccoon Bend. All other fields are Grades A only

Can't Ship Crude to East Says Associated Oil

LOS ANGELES, March 17.—Competition of crude oil produced in West Texas and Venezuela has made it economically impossible for California companies to ship surplus produced or purchased gasoline to east coast refineries during 1929, the Associated Oil Co. stated in its annual report.

This condition, together with gasoline price disturbances in the first quarter of 1929 on the Pacific Coast, was primarily responsible for the decreased value of total sales of $7,515,877, as compared with 1928. This loss was offset, however, by a reduction in total expense of $9,268,751.

In the report to stockholders it was indicated that the net earnings of the company and 100 per cent subsidiaries totaled $8,940,699.59 during the year, or an earning of $3.90 per share on 2,290,412 shares of common stock outstanding after all charges including depreciation, depletion and Federal income tax had been subtracted.

Through the above mentioned reduction in expense the company's current assets were increased $2,314,398. The funded debt was decreased $2,379,000 and current liabilities decreased $1,616,306.

Smaller Gain In Crude Stocks

NEW YORK, March 24.—An increase of 1,019,000 barrels took place in pipe line and tank farm gross domestic crude stocks east of the Rockies during February, compared with an increase of 1,939,000 barrels in January, according to preliminary figures of the American Petroleum Institute.

The Griscom-Russel Co. has moved its Chicago offices to 30 N. Wacker Drive, Chicago, effective March 1.

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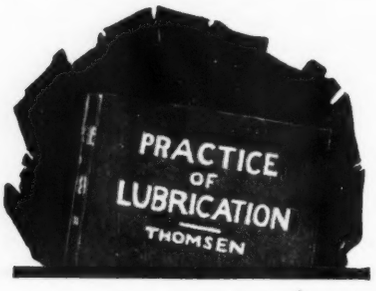

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The book takes up the manufacture of various lubricating oils and greases; tests by which oil and grease specifications are written; general discussion of lubrication problems in cylinders, turbines, internal combustion engines; power transmission machinery such as shafting; wire ropes; belts, gears, bearings, etc., driven machines such as air compressors, pneumatic tools, ice machinery, machine tools, textile machinery, paper mills, mine and quarry machinery.

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Crude Oil Prices (in Effect March 24, 1930)

(Prices are per barrel at the well)

(Crude Oil Prices for the whole year in OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective Jan. 15, 1930

Grades A	$1.05	*Grades B	$0.90
‡Grades B (light crude)			
35–35.9	$1.23	40–40.9	$1.36
36–36.9	1.26	41–41.9	1.38
37–37.9	1.29	42–42.9	1.40
38–38.9	1.32	43–43.9	1.42
39–39.9	1.34	44 and above	1.44

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on all oil below 35° is same as Humble's postings on Grades B.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective Feb. 15, 1930)

‡Salt Creek 29–29.9	$0.90
" " 30–30.9	0.96
" " 31–31.9	1.02
" " 32–32.9	1.08
" " 33–33.9	1.11
" " 34–34.9	1.14
" " 35–35.9	1.17
" " 36–36.9	1.20
" " 37 and above	1.23
Elk Basin	1.45
Grass Creek light	1.45
Big Muddy	$1.33
Lance Creek	1.53
Rock Creek	1.25
Mule Creek	1.20
Rex Lake	1.10
‡Osage	1.45
‡Cat Creek, Mont.	1.45
Sunburst, Mont.	1.65
‡Hogback, N. Mex.	1.70
Artesia, N. Mex.	1.00

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

CALIFORNIA

Standard Oil Co. of California

(Effective March 11, 1930)

Gravity	Signal Hill Seal Beach Alamitos Heights Huntington Beach Inglewood* Olinda-Brea Canon*	Athens Rosecrans Dominguez	Elwood Terrace	Torrance Richfield	Whittier La Habra	Montebello	Coyote	Santa Fe Springs	Newhall McKittrick Kern River	Midway-Sunset Elk Hills Buena Vista Hills	Coalinga	Wheeler Ridge	Kettleman Hills	Orcutt (Santa Maria) (Union Oil Co.)	Santa Paula (Ventura) (Union Oil Co.)	Ventura Avenue (Associated Oil Co.)
14–14.9**	$0.70	....	....	$0.70	$0.70	$0.70	$0.70	....	$0.55	$0.55	$0.55	$0.55	....	$0.55	$0.70	$0.70
15–15.9	.70	....		.70	.70	.70	.70	....	.55	.55	.55	.55	....	.55	.70	.70
16–16.9	.70	....		.70	.70	.70	.70	....	.55	.55	.55	.55	$1.65	.55	.70	.70
17–17.9	.70	....		.70	.70	.70	.70	....	.55	.55	.55	.55	for	.55	.70	.70
18–18.9	.76	....		.76	.76	.71	.76	....	.55	.62	.62	.62	55°	.65	.75	.76
19–19.9	.82	....		.82	.82	.77	.82	....	.55	.70	.70	.70	gravity	.70	.80	.82
20–20.9	.88	....		.88	.87	.83	.87	....	....	.78	.78	.78	and	.78	.85	.88
21–21.9	.94	....	F. o. b. ship	.94	.93	.90	.93	.92	....	.86	.86	.86	over	.90	.90	.91
22–22.9	1.00	....	....	1.00	.98	.97	.98	.95	....	.94	.94	.94	....	.95	.97	.94
23–23.9	1.07	....	....	1.07	....	1.05	1.04	1.01	....	1.02	1.02	1.02	....	1.02	1.05	1.00
24–24.9	1.14	1.14	....	1.14	....	1.11	1.10	1.07	....	1.09	1.07	1.07	....	1.10	1.08	1.07
25–25.9	1.21	1.19	....	1.21	....	1.17	1.16	1.13	....	1.16	1.12	1.12	....	1.18	1.13	1.14
26–26.9	1.28	1.24	....	1.28	....	1.23	1.23	1.19	....	1.23	1.17	1.17	....	1.26	1.18	1.21
27–27.9	1.35	1.29	....	1.35	....	1.29	1.30	1.25	....	1.30	1.23	1.22	....	....	1.23	1.28
28–28.9	1.42	1.34	....	1.42	....	1.35	1.37	1.31	....	1.35	1.27	....	....	....	1.28	1.35
29–29.9	1.46	1.39	....	†1.46	....	1.38	1.41	1.37	....	1.41	1.31	....	....	....	1.33	1.39
30–30.9	1.50	1.45	....	†1.50	....	1.41	1.45	1.43	....	1.47	1.35	....	....	....	1.39	1.43
31–31.9	1.55	1.51	....	....	....	....	....	1.49	....	1.53	1.39	....	....	....	1.45	1.48
32–32.9	1.60	1.57	....	....	....	....	....	1.55	....	1.59	1.43	....	....	....	1.51	1.53
33–33.9	....	1.64	....	....	....	....	....	1.60	....	1.65	1.47	....	....	....	1.58	1.59
34–34.9	....	1.71	1.32	....	....	....	....	1.65	....	††1.71	1.51	....	....	....	....	1.65
35–35.9	....	1.78	1.39	....	....	....	....	1.70	....	††1.77	1.55	....	....	....	....	1.71
36–36.9	....	1.84	1.46	....	....	....	....	1.75	....	....	....	....	....	....	....	....
37–37.9	....	1.90	1.53	....	....	....	....	1.80	....	....	....	....	....	....	....	....
38–38.9	....	1.96	1.60	....	....	....	....	1.85	....	....	....	....	....	....	....	....
39–39.9	....	2.02	1.66	....	....	....	....	1.90	....	....	....	....	....	....	....	....
40–40.9	....	2.08	1.72	....	....	....	....	....	....	....	....	....	....	....	....	....
41–41.9	....	2.14	1.78	....	....	....	....	....	....	....	....	....	....	....	....	....
42–42.9	....	2.20	1.84	....	....	....	....	....	....	....	....	....	....	....	....	....

*Inglewood prices run only to 28.9 gravity; Olinda-Brea Canon to 31.9 gravity.
†Richfield crude only. ††These two grades apply on Lost Hills only.
**Standard does not contract for crude testing below 14 gravity, but pays 45c per barrel when purchased

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

Refiners' Supplies

	Mar. 24	Mar. 17
Soda Ash light 58% bags, cwt.	$1.32	$1.32
Silicate of Soda 60 deg. drums, cwt.	$1.55	$1.55
Silicate of Soda 40 deg. tank cars, cwt.	$0.60	$0.60
Silicate of Soda 40 deg. drums cwt.	$0.80	$0.80
Sal Soda wks.	$1.00–1.05	$1.00–1.05
Caustic Soda 76% solid, cwt.	$2.90	$2.90
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks.	$18.50	$18.50
Sulfur, flowers of, cwt.	$3.10–4.00	$3.10–4.00
Liquid Chlorine, tank cars, wks., lb.	3.50–5.00	3.50–5.00

Compounders' Supplies

	Mar. 24	Mar. 17
Vegetable Oils		
Linseed carloads, spot, lb.	13.80	13.80
Tanks, spot	13.00	13.00
Soya Bean, Tank, coast, lb.	9.00–9.50	9.00–9.50
Oleic Acid		
Distilled, tanks, lb.	9.25–9.50	9.25–9.50
Distilled, bbls., lb.	10.125-10.375	10.125-10.375
Saponified, tanks, lb.	9.25	9.25
Saponified, bbls., lb.	10.125–10.625	10.125-10.625
Lard Oils		
Prime Winter Strained, lb.	13.25	13.50
Extra Winter Strained, lb.	12.00	12.50
Extra, lb.	11.50	12.00
Extra No. 1, lb.	11.00	11.25
No. 1, lb.	10.50	11.00
No. 2, lb.	10.25	10.75
Tallow oil, lb.	10.00	10.00
Neatsfoot Oil		
Pure, bbls., lb.	13.00	13.50
Extra, bbls., lb.	11.25	11.50
No. 1 bbls., lb.	11.00	11.00
Cold Pressed, lb.	17.50	18.00
Fish Oils		
Menhaden Oil		
Light Pressed, gal.	63–65	63–65
Light Pressed, tank cars, N. Y., gal.	53	53
White bleached, gal.	67	67
Yellow bleached, gal.	61	61
Whale, extra winter bleached, gal.	85	85
Naval Stores		
Steam, distilled turpentine, N. Y., gal.	51	51
Steam distilled turpentine, Savannah, gal.	45	45
Gum turpentine, N. Y., gal.	56.50	56.50
Gum turpentine, f.o.b. cars Savannah, gal.	53	53
Wood Rosin, N.Y., gal.	$7.30	$7.30
Wood Rosin F, Savn'h, bbl	$6.50	$6.50
Gum Rosin B, N. Y., bbl	$7.60	$7.60
Gum Rosin B, f.o.b. cars Savannah, bbl.	$6.50	$6.50
Rosin oil, pure, gal.	58	58
Rosin oil, compounded, gal.	58	58
Pine Tar		
Kiln burnt, bbl.	$13.00–14.00	$13.00–14.00
Retort, bbl.	$13.50–14.50	$13.50–14.50
Alcohol		
Denatured Formula 5, in bbls., per gal.	54–57	54–57

New Refining Book Is Published

The second edition of H. S. Bell's American Petroleum Refining, recently off the press, will undoubtedly find a ready place on the bookshelves of those engaged or interested in this phase of the oil industry, since the technical developments in refining in recent years have outstripped the publishing of books dealing with these subjects.

"In the seven years that have elapsed since the publication of the first edition of this book, the technique of oil refining has advanced at a rapid rate and it seems desirable to present the latest practices and the trend of modern development in the form of a new and revised edition," says the author in the preface to the second edition. The first edition was brought out in 1923.

Mr. Bell is well qualified to write on refinery operation. Since his first edition was written he has maintained a consulting refinery engineering service which has brought him into direct contact with plan operators as they worked out new ideas both in plant design and operation.

The valuable tables and diagrams which appeared in the first edition have been revised to include later data and statistics, and numerous new tables and illustrations have been added. The text has been amplified by the addition of nine new chapters.

New methods of treating lubricating oils and light oils, a particularly pertinent subject to refiners nowadays are gone into in detail, as is also the removal of amorphous waxes to allow the manufacture of low cold test lubricants.

The discussion of cracking brought up to date by including the early liquid cracking processes of Hall. Leamon, Jenkins, Holmes, Manly and Isom and the vapor cracking processes of Hall, Leamon, the Gyro Method and De Florez. An account of chemical cracking with aluminum chloride is included.

In addition to covering other new phases of the refining art, Mr. Bell's book reviews and brings up-to-date such valuable material as appeared in his first volume as the chemical and physical properties of petroleum products; plant design, storage of oil, volume measurements and pumping of oil.

The new edition of "American Petroleum Refining," by H. S. Bell, may be secured from NATIONAL PETROLEUM NEWS at $6 per copy, postage prepaid.

R. D. Walker

Tank Car Sales Head For Detroit Company

DETROIT, March 3.—R. D. Walker, well known to oil jobbers and industrial fuel users in Ohio, Michigan and Canada, has joined Fisher Industries, Inc., tank car marketers here. Mr. Walker was placed in charge of tank car sales for that company, according to R. R. Fisher, president.

Mr. Walker first entered the oil industry through the natural gasoline division of the Gilland Oil Co., Shamrock, Okla., then a subsidiary of the Paragon Refining Co., Toledo, O. That was in 1919. From that position he joined the Acme Petroleum Co., Tulsa.

Later he opened up the Detroit branch office for the Pure Oil Co. He was manager of that office for two years, leaving Detroit to become sales manager of the Humphreys Pure Oil Co.

He resigned from the Pure company in 1926 to organize his own real estate company at Detroit.

Kenneth Clapp Goes Back With Wayne Co.

CLEVELAND, March 22.—Kenneth S. Clapp, formerly sales director of the United States Air Compressor Co. here, has incorporated the Clapp patent Corp. of Cleveland, which corporation has acquired and developed patents on a new type of grease dispensing equipment of principle and construction according to Mr. Clapp.

The equipment includes portable and stationary dispensers for metering 600-W gear compound of any consistency and conforms specifically to the new weights and measures code of the U. S. Bureau of Standards which will be effective next July 1.

Other units will consist of both stationary and portable high pressure chasis lubrication models, which will handle any material from light to the heavy fibrous greases at high pressures. For several years test models of this new equipment have been in operation under all considerations, so that production and deliveries will be available for the trade some time during June, in time for the operation date of the new code. According to the code, grease dispensing equipment must be of the metering type, the scale being in liquid measure.

Mr. Clapp has associated his patent holding company and himself with the Wayne Co., Fort Wayne, Ind., manufacturer of service station equipment. He was formerly with this company as sales executive for five years following the World War.

The Rochester, Pa. plant of the company will make the new grease dispensing equipment as well as pneumatic lifts and lube oil equipment, while air compressors and car washers will be made at the Fort Wayne factory.

The Wayne company has always distributed its products through its own sales organization, but Mr. Clapp will develop new distributing channels through automotive jobbers in this country, in Canada and in foreign countries. Development and promotion of airport hangar equipment for the aircraft industry are also on the company's marketing program.

Tennessee Gasoline Price Law Is Wiped Out

MEMPHIS, Tenn., March 24—Tennesee's gasoline price fixing law which was passed in 1927, has been fought to the last bout, final decree having been entered by the state in February declaring the law void and unconstitutional and granting a permanent injunction against the enforcement of the statute, according to McDonald & McDonald, lawyers of Memphis.

The oil industry of Tennessee was divided against itself in the case the Independent jobbers having helped get the law passed through the legislature in April, 1927, because it carried provisions outlawing the practice of giving rebates.

Four major companies the Standard Oil Co. of Louisiana, The Texas Co., the Pan American Petroleum & Transport Co. and the National Refining Co. took the other side, attacking the law unconstitutional fearing the spread of such action into other states and which might convert gasoline selling into the public utility field.

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IT'S an all pure Pennsylvania oil that the motorist wants these days. It's getting harder and harder to sell him anything else.

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We'll make up motor oils (Sharples Process) to your own specifications. Or if you prefer we'll recommend motor oils of tested specifications of this 50 year old refining organization. In either case you're sure to get the same kind of satisfaction we're rendering now to over 700 jobbers throughout the country.

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No. 369—A compact outfit. Folio made from heavy 5-oz. smooth black cowhide, with 5½-inch over-all expansion and three inner pockets. Inner case contains six 4-oz. bottles, displayed on a background of red velvet. Each bottle is partitioned separately. Case also contains five grease jars.

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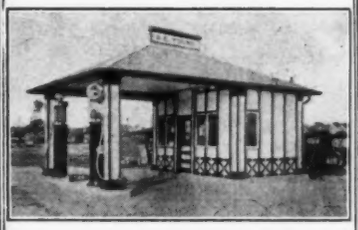

Metal Filling Stations Lower Your Overhead

Metal Shelter filling stations are erected at much lower cost than any other type. Their beauty attracts customers. Their construction, of copper-alloy galvanized steel, makes them weather-proof, fireproof and rust-resisting. Styles, sizes and prices to suit every need.

Write for proposition to agents

METAL SHELTER CO.
3-23 WEST WATER ST.
SAINT PAUL, MINNESOTA

Transactions in Oil Shares on New York Stock Exchange

1928 High	1928 Low	1929 High	1929 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Mar. 22 Sales	First	High	Low	Last	Change
43⅞	27⅛	42⅝	17½	(sh) 992,075	N.P.	Amerada Corp	50cQ	Jan. 31, 30	16,700	21¾	23⅞	21½	23¼	+ 2
85	51¼	64¾	12½	(sh) 209,180	N.P.	American Republics Corp	....	.....	6,900	31	33⅞	30¼	31⅛	+ ⅛
53⅜	37½	47¼	32½	$56,000,000	$25	Associated Oil	50cQ	Dec. 31, 29	50	41¼	42	41¼	42	+ 1½
62½	50	77⅛	30	50,000,000	25	Atlantic Refining	‡25cQ	Dec. 16, 29	77,000	46⅝	49¼	46¼	47½	+ 1
53	20	49⅛	20	47,261,125	25	Barnsdall Corp. A	50cQ	Feb. 7, 30	91,000	26⅞	28½	26¾	28	+ 1⅜
51⅜	20	49	38⅛	300,525	25	do B	50cQ	Feb. 7, 30	.....	....	....	....	....	.....
24½	12¼	32⅞	13	(sh) 956,075	N.P.	Beacon Oil	....	.....	1,700	15¼	16	14¼	15	0
36	25¼	34½	25	$51,524,150	$25	California Petroleum	....	Jan. 1, 29	.....	....	....	....	....	.....
....	....	37⅜	18	(sh) 4,634,163	N.P.	Continental Oil (Delaware)	....	.....	97,300	25⅛	26⅞	24⅛	26	+ ⅞
94⅞	68	94¾	42¼	21,031,400	100	General Asphalt	$1Q	Dec. 16, 29	64,200	61¼	66¼	60¾	65	+ 3⅝
141	110⅛	138	103½	6,628,200	100	do pfd	$1.25Q	Dec. 2, 29	.....	....	....	....	....	.....
67	79	109	23	25,000,000	100	Houston Oil	....	.....	72,100	83½	94½	83	91½	+ 9⅞
38⅜	21¾	39¼	17¾	(sh) 1,333,157	N.P.	Independent Oil & Gas	50cQ	Jan. 31, 30	59,700	25½	27⅞	25½	27	+ 1½
39⅝	9	53	13	$4,299,190	$10	Indian Refining	....	Dec. 15, 20	216,500	22⅜	28⅜	21½	27⅛	+ 5½
37¼	8½	51¼	11½	4,550,110	10	do ctfs	....	.....	51,300	19¾	27¾	19¾	26½	+ 6⅝
185	140	165	160	1,977,700	100	do pfd. new	$1.75Q	Jan. 1, 30	.....	....	....	....	....	.....
39⅛	27⅜	38⅝	16½	3,992,387	N.P.	Lago Oil & Transport	....	May 2, 27	300	25½	25½	25½	25½	+ ½
119¾	9⅜	18	7	(sh) 1,187,298	N.P.	Louisiana Oil Refining	....	.....	8,600	10	10⅜	9	10	0
96	78	100¼	80	$4,000,000	$100	do pfd	$1.62½	Feb. 15, 30	.....	....	....	....	....	.....
25½	12½	18½	5⅛	(sh) 330,000	N.P.	Maracaibo Oil	....	.....	4,800	8⅝	10⅜	8¼	9¾	+ 1
360	250	295	176	$45,942,800	$100	Mexican Petroleum	$3Q	Jan. 20, 30	.....	....	....	....	....	.....
....	....	....	....	12,000,000	100	do pfd	$2Q	Jan. 20, 30	.....	....	....	....	....	.....
73	4⅝	69⅜	9¼	(sh) 995,500	N.P.	Mexican Seaboard	....	Nov. 15, 24	315,500	28¼	35⅞	28	34½	+ 6½
44½	25⅛	39⅞	22⅛	(sh) 1,857,461	N.P.	Mid-Continent	50cQ	Feb. 15, 30	56,400	29⅛	31⅜	29⅛	30⅝	+ 1⅜
120½	103¼	121	120¼	$6,718,000	$100	do pfd	$1.75Q	Dec. 1, 29	.....	....	....	....	....	.....
7⅜	2⅜	5⅛	¾	23,849,720	10	Middle States	....	July 1, 23	.....	....	....	....	....	.....
5⅞	1½	3⅜	⅛	5,950,500	10	do ctfs	....	.....	35,000	1⅝	2½	1⅝	1⅞	+ ⅛
2¼	1	1½	⅝	(sh) 3,500,000	N.P.	Pacific Oil	....	.....	6,700	1⅛	1¼	1⅛	1⅛	0
55½	38¼	69	40¼	$50,000,000	$50	Pan American P & T	....	Oct. 20, 27	400	54½	55	54½	54½	— ½
58⅞	37⅜	69¼	40½	121,101,400	50	do B	....	Oct. 20, 27	4,300	54½	57	54½	55	0
28⅜	15½	17½	13½	(sh) 400,000	N.P.	Pan. American Western B	....	Jan. 30, 27	.....	....	....	....	....	.....
21¾	11½	15¼	3	199,370	N.P.	Panhandle P. & R	....	.....	9,200	6⅞	8½	6½	8⅜	+ 1½
106¼	70	76	47½	$2,935,200	$100	do pfd	....	July 2, 23	.....	....	....	....	....	.....
53⅞	35¼	47	24¼	(sh) 2,406,803	N.P.	Phillips Petroleum	‡50cQ	Jan. 2, 30	55,800	36⅜	38⅜	36½	37⅞	+ 1½
5¼	½	3⅜	1	$29,622,925	$25	Pierce Oil Corp	....	.....	49,000	2	2½	2	2⅛	+ ⅛
50	16¼	51½	20	15,000,000	100	do pfd	....	Feb. 1, 22	7,900	40	41⅜	36¼	36¾	— 3
6⅝	3½	5⅞	½	(sh) 2,500,000	N.P.	Pierce Petroleum	....	.....	27,900	6⅛	6⅞	5½	6	— ¼
64⅝	59½	65⅝	40½	$60,636,450	$25	Prairie Oil & Gas	‡50cQ	Dec. 31, 29	5,800	49	49¼	47⅝	48⅞	+ ⅞
....	....	65	45	101,250,000	25	Prairie Pipe Line	‡75cQ	Dec. 31, 29	8,600	55⅜	55⅞	54¾	55	— ¾
29⅞	16	25⅞	4	37,450,850	50	Producers & Refiners	....	Sept. 15, 23	11,200	10⅛	11⅞	10	11	+ ⅜
49⅝	41	46¾	25½	2,845,350	50	do pfd	....	May 1, 25	40	40	40	38	38	0
51¼	19	30¾	20	75,959,255	25	Pure Oil Co	37½cQ	Dec. 16, 29	46,800	24⅛	25	23½	24⅛	— ⅝
119	108	116	108	13,000,000	100	do 8% pfd	$2Q	Jan. 2, 30	80	113	113½	113	113½	+ ½
56	23½	49⅜	20	47,127,725	25	Richfield Oil	50cQ	Feb. 15, 30	48,900	26¾	22⅞	25¾	26¾	+ ¼
....	....	42½	15	(sh) 1,200,000	N.P.	Rio Grande Oil Co	50cQ	Jan. 25, 30	46,900	23½	24⅜	22¼	23⅛	— ¼
64	44⅜	64	43⅛	(sh) 546,646	$13.40	Royal Dutch N. Y. shares	$1.3415	Feb. 5, 30	35,800	50¾	51⅞	50¾	51¾	+ 1⅛
57½	39⅜	55¾	22⅜	(sh) 65,203,000	£2	Shell Transport & T	97c	Jan. 28, 30	16,900	....	23⅜	‡22⅝	22⅞	— ¼
39⅜	23¼	31⅜	19	12,254,979	N.P.	Shell Union Oil	35cQ	Dec. 31, 29	14,900	23⅛	23⅜	22⅝	23⅛	0
27¼	18¼	40⅛	15	$8,357,280	$10	Simms Petroleum	40cQ	Feb. 28, 30	374,400	33⅛	36⅜	32¾	35¼	+ 2¾
46⅜	17⅜	45	21	5,494,095	N.P.	Sinclair Consolidated	50cQ	Jan. 15, 30	142,700	27⅛	28¼	26½	27⅝	+ ⅝
110	102½	111	103	$16,025,200	$100	do pfd	$2Q	Feb. 15, 30	400	110⅜	110⅜	110⅜	110⅜	+ ⅜
42⅝	25	46½	28	27,396,590	25	Skelly Oil Co	50cQ	Dec. 16, 29	25,900	33⅜	35⅞	33	35¼	+ 2⅛
80	53	81⅞	51½	(sh) 13,016,435	N.P.	S. O. California	‡62½cQ	Dec. 16, 29	36,100	62½	65	62⅛	64	+ 1⅞
59¾	37¾	83	48	$612,095,850	$25	S. O. New Jersey	‡25cQ	Dec. 16, 29	312,900	65¾	69	65¼	68¾	+ 3⅜
45½	28¾	48⅛	31¼	434,094,575	25	S. O. New York	40cQ	Dec. 16, 29	62,800	33¾	35½	33⅜	34¼	+ ⅝
77	31½	84¾	53	(sh) 1,297,847	N.P.	Sun Oil	‡25cQ	Dec. 16, 29	3,700	57	65¾	57	64	+ 6
110	110	105½	100	$5,000,000	$100	do pfd	$1.50Q	Dec. 2, 29	410	102½	103¼	102½	103¼	+ ¼
14¼	2½	24	5¼	(sh) 1,304,698	N.P.	Superior Oil Corp	....	Dec. 20, 20	22,600	7⅜	8¼	7¼	7⅞	+ ⅝
74¾	50	71⅞	50	$211,082,925	$25	The Texas Corp	75cQ	Jan. 1, 30	74,000	55¾	57¾	55¼	57¼	+ 3
26⅛	12⅛	23⅞	9	8,380,340	10	Texas Pacific Coal & Oil	2½%s	Dec. 31, 29	50,400	12⅞	14½	12½	13	+ ⅜
41½	19⅝	40	14	(sh) 2,179,275	N.P.	Tide Water Oil Co	20cQ	Dec. 31, 29	400	23	23⅞	23	23	— ½
100¼	86¾	97½	85⅛	$20,321,000	$100	do 5½% pfd	$1.25Q	Feb. 15, 30	.....	....	....	....	....	.....
25	14¾	23⅛	10	(sh) 4,877,976	N.P.	Tide Water Associated	30cQ	Feb. 15, 30	80,200	13¾	15⅜	13⅜	14½	+ ⅝
91¾	81¾	90⅜	74⅛	$72,989,200	$100	do pfd	$1.50Q	Jan. 2, 30	1,400	80½	82⅞	78¾	82⅞	+ 3⅞
14⅛	6¾	15¼	5⅛	(sh) 3,842,029	N.P.	Transcontinental Oil	....	.....	160,000	9⅛	10⅛	8⅛	9⅜	+ ⅜
58	42¾	54½	41⅜	$40,858,375	$25	Union Oil of California	‡50cQ	Feb. 10, 30	21,600	45¾	47⅜	45¼	45⅜	+ ⅜
128⅛	110	163¾	33	31,101,200	100	Union Tank Car Co	$1.25Q	Dec. 2, 29	1,100	36	36	35	35	— ¼
44⅞	26	42⅞	15	(sh) 488,359	N.P.	Warner Quinlan	50cQ	Jan. 2, 30	40,200	17¾	20⅛	17¾	18¾	+ 1
38	20⅛	38	25	(sh) 490,000	N.P.	White Eagle Oil & Refining	50cQ	Jan. 20, 30	1,000	28⅞	29½	28⅞	29½	+ ½
22⅛	17¼	29¾	11½	(sh) 428,967	N.P.	Wilcox Oil & Gas	....	May 10, 28	4,600	16¼	18	16¼	17½	+ 1⅜

*New High †New Low xEx-Dividends ‡Also Extras s-Stock Total Sales 2,988,980

Associated Oil to Build Refinery in Japan

LOS ANGELES, March 17.—Associated Oil Co. has joined with the Mitsubishi interests in Japan to manufacture and market petroleum products in the Japanese Empire.

A new company to be known as the Mitsubishi Oil Co. Ltd., is being organized with headquarters at Tokyo with a capitalization of 5,000,000 yen divided into 100,000 shares of capital stock with a par value of 50 yen each, which will be owned by Associated and Mitsubishi interests jointly.

Land has already been acquired for constructing a modern refinery by the new company. The plant, which will be located on Tokyo Bay between Tokyo and Yokohama, is to be built by Associated engineers and will have a capacity of 4000 barrels of crude and a cracking capacity of 1500 barrels per day. Crude to be furnished by Associated from its California production.

The refinery will be equipped to manufacture gasoline, distillates, lubricating oil, fuel oil, and other petroleum products to be marketed in Japan, Korea, Formosa and other parts of the Far East.

Mitsubishi Goshi Kaisha (Mitsubishi Holding Co.) with a capital of 120,000,000 yen, and headed by Baron Koyata Iwasaki, is considered to be one of the most powerful and influential concerns of Japan. It is engaged in the principal industries of the Empire, including mining, shipbuilding, banking, importing, exporting, shipping, insurance, etc. A subsidiary of this company, the Mitsubishi Shoji Kaisha has acted for many years as distributor for Associated products in Japan.

Cities Service Buys in Flint

DETROIT, March 21.—Cities Service Oil Co. has purchased the Lincoln Petroleum Products Co., Flint, Mich. The Lincoln company operated 35 outlets and a bulk plant.

Pittsburgh Stock Exchange

Transactions week ended March 21, 1930

	Sales	High	Low	Last	Change
Ark. Nat. Gas	3,500	16½	14½	15	+ ½
do pfd	2,314	8	x7⅞	7⅞	0
Devonian Oil	158	11	10	10	— ½
Dixie & Util. pfd.	191	90	81	89	+14
Lone Star Gas	17,216	43	x39	41½	+2¼
do pfd	107	106	105¾	106	+ ¼
Plymouth Oil	500	24½	24½	24½	— ¼
Phoenix Oil	1,000	c.30	.30	.30	0
Shamrock Oil & Gas	8,060	23	21⅞	22½	+ ½

xEx dividend.

Pittsburgh Curb Market

Transactions week ended March 21, 1930

	Sales	High	Low	Last	Change
Arkansas Gas A	712	15	13⅜	14⅜	+ ⅝
Gulf Oil	900	154½	150	150	+16¼
Leonard Oil and Dev.	21,650	4	3¼	3½	+ ½

Financial Notes

Indiana Pipe Line Co.—All directors re-elected at annual meeting. Officers subsequently re-elected.

Oil Shares, Inc.—All directors and officers re-elected at annual meeting.

Richfield Oil Co.—All directors and officers re-elected.

Rio Grande Oil Co.—All directors and officers re-elected at annual meeting.

Signal Oil & Gas Co. of California—Directors and officers re-elected at annual meeting.

Standard Oil Co. of New York—Henry Dundas elected a director.

White Star Refining Co.—Directors and officers re-elected at annual meeting.

American Oil Takes Over Penn Oil Co.

BALTIMORE, March 21.—The American Oil Co. recently acquired the Penn Oil Co., Washington, D. C. Eastern newspapers reported the purchase price as $3,750,000.

All properties of the Penn Oil Company, which include 65 service stations in the District of Columbia, Maryland and Virginia, as well as storage and terminal facilities, were included in the purchase.

These stations will henceforth be operated by the Lord Baltimore Filling Stations, Inc., a subsidiary of the American company. The Penn company was the largest station operator in Washington and with its sale to the American company, the latter will operate 83 service stations in the District and suburban points, according to Joseph Leopold, of the latter's advertising department.

The American company is affiliated with the Pan American Petroleum & Transport Co. and is a strong link in one of the largest oil producing and marketing chains in the world, according to its newspaper announcement.

The Penn stations, controlled by Paul Himmelfarb, jumped into national prominence at the beginning of the year as a result of negotiations with the Shell interests for the transfer. The deal, however, did not go through.

Kansas Jobbers to Meet

CLEVELAND, March 24.—The Kansas Oil Men's Association will hold its annual convention at the Broadview hotel, Wichita, on April 17 and 18, according to an announcement by J. A. Motter, secretary. The association recommends early hotel reservations since a large attendance is forecast.

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All advertisements carried on this page are payable in advance.

Standard Oil Stocks on New York Curb

1928 High	1928 Low	1929 High	1929 Low	Outstanding Capital	Par Value	Stocks	Div Rate	Last Paid	Transactions Sales	Week Ended Mar. 22 First	High	Low	Last	Change
22⅜	14⅞	18¾	14¼	£4,126,460	£ 1	Anglo-American Oil	36c	June 5, 29						
21¼	15	18	13	.....	....	do certificates	36c	June 5, 29	100	14	14	14	14	0
20½	14⅜	17	11	.....	£ 1	do ctfs. non-voting	36c	June 5, 29						
5	1¼	2½	½	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	100	½	¾	½	¾	+ ¼
9¾	3¼	4⅛	1	$10,000,000	$50	do pfd								
56	44½	46½	23¼	$1,000,000	25	Borne-Scrymser	$1 S.A.	Oct. 15, 29	50	23¼	23¼	†23¼	23¼	— 1½
76	58	74¼	55	10,000,000	50	Buckeye Pipe Line	‡$1Q	Dec. 14, 29	100	63¾	63¾	63¾	63¾	— ⅛
161	117¼	210	130	3,000,000	25	Chesebrough Mfg	‡$1Q	Dec. 30, 29	900	160	168¼	160	168¼	+13¼
23	16	29	8⅛	36,123,350	10	Continental Oil	.....	Dec. 15, 27	400	14¾	16⅞	14¾	15⅞	+ ½
17½	9½	11¾	5⅝	.....	N.P.	Creole Petroleum	.....	.....	6,800	6¾	7½	6¾	6⅞	+ ½
82	67	95	40	1,500,000	50	Cumberland Pipe Line	$1Q	Dec. 16, 29						
88	64⅛	70½	42	5,000,000	100	Eureka Pipe Line	$1Q	Feb. 1, 30	200	45	45	45	45	— 5
13	4¼	7	3	16,000,000	100	Galena Signal Oil	.....	June 30, 25						
86	26	90	73½	4,000,000	100	do new pfd	.....	June 30, 26						
89¾	35	88	71½	2,000,000	100	do old pfd	.....	June 30, 26						
114¾	59¼	128	74¼	73,685,700	25	Humble Oil & Refining	50cQ	Jan. 1, 30	194,000	101¼	109⅜	101¼	106¾	+ 7¼
290½	176½	340½	260	20,000,000	100	Illinois Pipe Line	$10S.A.	Dec. 16, 29						
104	56¾	41	22	(sh) 26,421,768	N.P.	Imperial of Canada	12½cQ	Dec. 2, 29	39,800	24⅝	26⅜	24⅝	26⅝	+ 1½
91⅞	74⅝	41⅞	26	$1,000,000	$10	Indiana Pipe Line	‡50cQ	Feb. 15, 30	900	38½	38½	37⅞	37⅞	— 1
55	35	37½	15	(sh) 14,247,088	N.P.	International Petroleum	12½c	June 25, 29	35,800	19⅞	22½	19⅜	21⅞	+ 1⅞
32⅜	19⅜	25⅞	10½	$6,363,350	12.50	National Transit Co	‡25cQ	Dec. 16, 29	2,800	20¼	20⅜	20	20⅜	+ ¾
75	38½	85	72	1,000,000	10	New York Transit	‡40cQ	Jan. 15, 30	.....	.....	.....	.....	.....	.....
....	....	....	....	.....	....	do new	.....	.....	.....	.....	.....	.....	.....	.....
69	56½	63	41	2,000,000	50	Northern Pipe Line	$2 S.A.	Jan. 2, 30	.....	.....	.....	.....	.....	.....
83½	58½	79⅞	64⅛	60,000,000	25	Ohio Oil Co	‡50cQ	Dec. 14, 29	700	69¼	72¼	69¼	72¼	+ 2¾
84	28	44½	18⅝	10,000,000	25	Penn Mex. Fuel	$1	Dec. 14, 29	500	20½	21⅞	20⅛	20⅛	— ⅞
220	167	50	26	4,000,000	25	Solar Refining	$1.25 S.A.	Dec. 20, 29	500	24⅜	29⅝	†26	29⅝	+ 4⅝
19	12	23½	13	1,000,000	10	Southern Pipe Line	$10	Dec. 31, 29	200	14½	15	14½	15	0
71⅞	36¾	60¼	35⅛	30,000,000	25	South Penn Oil	‡50cQ	Dec. 30, 29	4,400	42	44⅛	42	43¼	+ 1¼
102	70	70	45	1,750,000	50	South West Pa. Pipe Lines	$1	Dec. 31, 29	150	50¼	50¼	50⅛	50⅛	— 8⅞
95⅞	70⅞	63	45	348,175,069	25	S. O. Indiana	‡62½cQ	Dec. 16, 29	36,300	53⅝	55⅜	53¼	55¼	+ 1⅝
27¾	15	33¾	18	8,000,000	25	S. O. Kansas	‡50cQ	Dec. 16, 29	10,300	30	39¼	29⅛	36	+ 6¾
49	44	46⅜	29	25,654,516	10	S. O. Kentucky	‡40cQ	Dec. 31, 29	7,900	36⅜	37	35¼	36¾	+ ½
54⅝	39⅞	50¼	40	4,649,225	25	S. O. Nebraska	‡62½cQ	Dec. 20, 29	500	48¼	48⅞	47⅜	48⅞	+ 1⅞
34	71	129	60	14,000,000	25	S. O. Ohio	62½cQ	Jan. 2, 30	1,350	87	104¼	87	104¼	+16¼
25	116	125½	106	7,000,000	100	do pfd	$1.75Q	Dec. 2, 29	60	122	122	120¼	120¼	+ ¼
23½	16	18	5⅛	861,466	25	Swan Finch	30c	Jan. 15, 29	.....	.....	.....	.....	.....	.....
111	72	133¾	75	126,154,000	25	Vacuum Oil	‡$1Q	Dec. 20, 29	15,200	93	95¼	91¼	92	— 2

*New High †New Low ‡Also Extras.

Independent Oils on New York Curb

1928 High	1928 Low	1929 High	1929 Low	Par Value	Stocks	Transactions Sales	Week Ended Mar. 22 First	High	Low	Last	Change
1½	.53	.72	.125	$5	Amer. Cons. Oilfields	7,400	1/16	3/16	1/16	1/16	+ 1/16
9½	3½	8⅝	1¼	N.P.	Amer. Maracaibo	1,900	2¼	2⅜	2	2	— ¼
4½	2¼	4¾	1	$10	Argo Oil	100	1	1	1	1	— ¼
3¾	3⅜	26	3¾	N.P.	Arkansas Nat. Gas	11,700	14¾	16⅜	14⅝	15	+ ⅜
....	....	24¾	6½	N.P.	do A	104,600	13¾	15⅜	13⅝	14	+ ¼
....	....	9	4	10	do pfd	600	7⅞	7⅞	7⅞	7⅞	0
55	32¾	70	50	N.P.	British American Oil	.....	.....	.....	.....	.....	.....
23⅜	3¾	4⅞	⅞	25c	Carib Syndicate	1,300	2	2	1¾	1⅞	— ⅛
....	....	68½	20	N.P.	Cities Service new	119,700	38	39½	37¾	38¾	+ ½
103½	94½	99¼	84	100	do pfd	1,200	89¾	92½	89¾	92½	+ 2¾
9⅝	8⅞	9¼	8	10	do pref. B	.....	.....	.....	.....	.....	.....
97	88½	96	81	100	do pref. BB	.....	.....	.....	.....	.....	.....
2¼	1	1½	¼	1	Colombia Syndicate	7,000	3/16	3/16	1/16	1/16	0
17¾	9¾	15	3⅞	N.P.	Colon Oil	4,800	6¾	7⅜	6⅜	6⅞	— ⅛
8⅞	6¼	11⅜	2½	10	Consolidated Royal	.....	.....	.....	.....	.....	.....
....	....	135	42	N.P.	Cosden Oil Co	2,900	54	56¾	53	54	+ ⅞
....	....	82	55	....	do pfd	100	64¾	64¾	64¾	64¾	+ 3¾
3¼	.76	2½	¼	N.P.	Crown Central	100	¾	¾	5/8	5/8	— ⅛
15	6¾	11¾	4	N.P.	Crystal Oil	.....	.....	.....	.....	.....	.....
50	48	51⅛	51⅛	$100	do pfd	.....	.....	.....	.....	.....	.....
33½	8⅛	26	6½	N.P.	Darby Petroleum	18,400	8½	11	8½	10¾	+ 1¾
2⅞	1	11	2	N.P.	Derby Oil & Refining	3,900	5	5¾	5	5¾	+ ⅞
21⅛	7½	44	5	N.P.	do pfd	300	35	36	35	36	+ 6
165	101⅛	209	115	$25	Gulf Oil Corp	11,800	145¼	154⅞	145¼	148	+ 2
7½	5⅝	7½	1⅛	5	Homaokla Oil	.....	.....	.....	.....	.....	.....
....	....	49¼	5	$1	Indian Territory	49,800	41	44⅞	40⅝	42⅛	+ ⅞
3⅜	1	2⅞	⅜	10	Intercontinental Pet	4,800	1	1	⅞	1	0
3	¼	3⅝	1¼	N.P.	Kirby Petroleum	1,900	2½	2½	2¼	2½	0
9⅜	5½	6⅛	1	N.P.	Leonard Oil & Dev	78,400	3½	4	3¼	3¾	+ ¾
43⅜	20	38⅞	18	N.P.	Lion Oil & Refg	2,800	24	24⅞	23⅞	23⅞	+ ⅞
....	....	67⅞	28	N.P.	Lone Star Gas	16,800	39½	43⅜	39½	41	— 1½
1⅞	.50	1¼	¼	1	Magdalena Syndicate	2,800	⅜	⅜	1/16	⅜	+ 1/16
48½	32	38½	15	N.P.	Margay Oil	.....	.....	.....	.....	.....	.....
8	2¾	6⅜	2	N.P.	Mexico-Ohio Oil	100	2⅞	2⅞	2⅞	2⅞	+ ¼
....	....	42	8	N.P.	Missouri-Kan. P. L	8,800	26	27⅞	24	25	— ⅛
1¾	.76	1½	¼	1	Mountain & Gulf	3,800	5/8	¾	5/8	5/8	0
28⅞	19½	22⅞	7	10	Mountain Producers	4,800	9	10¼	9	10¼	+ 1
....	....	43⅞	24	N.P.	Nat. Fuel Gas (new)	5,900	30½	32½	30½	32½	+ 2¼
5⅝	4¼	5	2¼	5	New Bradford	700	2⅞	3	2¾	2⅞	— ⅛
5½	3	3⅞	2¾	10	New England Fuel	.....	.....	.....	.....	.....	.....
11⅞	7⅛	9⅜	2¼	1	New Mex. & Ariz	1,600	6¾	6⅞	6½	6¾	+ ½
15½	11½	24½	10⅛	25	New York Petrol	200	12	12	†10⅛	12	— ½
13¼	8⅛	18½	6⅛	N.P.	North Cent. Texas	.....	.....	.....	.....	.....	.....
....	....	19¼	8⅛	N.P.	Oil Stock, Ltd. A	600	10⅛	10½	10⅛	10¼	+ ⅛
....	....	18¼	8½	N.P.	do B	200	10	10	10	10	0
26¼	20	26⅝	12⅛	N.P.	Pacific Western Oil	800	16½	16½	15½	15¾	— ¼
6	2¼	3½	½	N.P.	Pandem Oil	35,000	1⅞	2½	1¾	2⅜	+ ⅛
15⅝	8½	10½	2⅛	N.P.	Pantepec Oil	4,600	2⅞	3⅝	2⅞	3⅝	+ 3
20	10⅝	25½	22½	$25	Paragon Refg. B ctfs.	.....	.....	.....	.....	.....	.....
....	....	34½	17	N.P.	Petroleum Corp	14,200	22¾	23⅜	22¼	22⅝	— ⅛
31⅜	26½	37	22	N.P.	Plymouth Oil	800	24½	25	24½	24⅞	— ¼
18	8	16	9	25	Red Bank Oil	100	9	9	9	9	0
13	4⅛	8⅛	1⅛	N.P.	Reiter-Foster	1,500	3⅛	3¼	2⅞	2⅞	— ¼
31½	23¼	25½	19	$25	Richfield pfd	.....	.....	.....	.....	.....	.....
....	....	29	13	....	Root Refining pfd	100	15	15	15	15	0
12	4⅜	11	3	N.P.	Ryan Consolidated	300	4¼	4⅜	4¼	4⅜	— ¼
7¼	5½	5⅞	1⅞	$10	Salt Creek Cons	100	2½	2½	2½	2½	0
35	23¼	25⅞	9	10	Salt Creek Prod	900	12¼	13⅜	12¼	13⅜	+ ⅞
3½	1	2½	½	5	Savoy Oil	.....	.....	.....	.....	.....	.....
40	27	33⅛	10	25	Shreveport El Dorado	.....	.....	.....	.....	.....	.....
....	....	24	9	N.P.	Southland Royalty	4,500	9¾	10¾	9¾	10½	+ ¾
....	....	12	4	N.P.	Sunray Oil	6,700	6¼	7⅛	6¼	6⅝	0
....	....	23	7⅛	N.P.	Texon Oil & Land new	4,600	10	14¼	10	12½	+ 2½
22⅞	13	16⅞	11⅜	$10	Tidal Osage	.....	.....	.....	.....	.....	.....
21¼	13⅛	16½	10⅛	10	do not-voting	.....	.....	.....	.....	.....	.....
93¾	75	155	80	100	Transcontinental pfd	.....	.....	.....	.....	.....	.....
74¼	18	81⅛	66	10	Venezeula-Mexico	.....	.....	.....	.....	.....	.....
9½	4¾	6½	1⅛	3	Venezuelan Petrol	12,300	4⅜	4½	3⅝	4	— ½
....	....	66	2¼	N.P.	White Star Oil	.....	.....	.....	.....	.....	.....
8¼	4⅞	9⅛	2	1	Woodley Petroleum	5,900	2	4	2	3¾	+ 1⅝
⅜	⅛	5⅜	¼	25	Y Oil & Gas	400	1¼	1⅝	1¼	1¼	+ ⅜

*New High †New Low

New York Curb Bonds

Week Ending Mar. 21

	High	Low	Last	Change
Beacon Oil 6s '36	104	103⅛	103½	— ⅞
Cities Serv. 5s '66	88¾	84	87¾	+4½
Cities Serv. G. 5½s '42	88⅛	84¼	88⅛	+3⅞
Cities Serv. G. P. 6s '48	91½	91¼	91½	+ ½
Cont. Oil 5½s '37	96	94½	95½	+ ½
Empire O & R 5½s '42	89	84½	89	+4¼
Gulf Oil 5s '37	101	100⅝	101	+ ¼
Gulf Oil 5s '48	102¼	101	101½	— ¾
Indep. Oil 6s '39	108½	103⅛	106	+2
Pure Oil 4½s '40	98⅞	98	98⅜	— ⅛
Sun Oil 5½s '39	102¾	101	102½	+1½
Valvoline Oil 7s '37	102	102	102	— ½

New York Bonds

Week Ending Mar. 21

	High	Low	Last	Change
Assoc. Oil gold 6s	103	102¾	102¾	— ¼
Atlantic Refg. deb. 5s	102	101½	101¾	0
Cal. Pet. 5s	100	98	100	+1½
Cal. Pet. 5½s	102½	101	101	0
General Pet. 5s	102	101¼	102	+ ⅞
Humble Oil & Refg. 5s	101¼	100	101	+ ¼
Humble Oil & Refg. 5½s	102½	102⅛	102⅛	+ ⅛
Pan Amer. P & T 7s	104¾	104¾	104¾	0
Pan Amer. P & T 6s	105	103	104	+ ½
Pan Amer. P & T 6s	95½	95	95	—1⅝
Phillips Pet. 5¼s	95½	93¾	95	+1¼
Pure Oil 5½s	100	98	100	0
Richfield Oil Calif. 6s	97¾	95¾	97½	+2
Shell Union Oil 5s	98	96½	97½	+ ⅞
Shell Union Oil 5s with war	102	99¾	100½	— ½
Sinclair Con. Oil 7s	104	102¼	103⅝	+ ⅞
Sinclair Con. Oil 6½s	102¼	101	102	+ ¾
Sinclair Con. Oil 6s D	100¾	100⅜	100½	+ ⅛
Sinclair Con. Crude 5½s	100½	98½	100	+1
Sinclair Pipeline	98½	97¼	98	+1¼
Skelly Oil 5½s	96	93½	96	+2⅛
S. O. N. J. 5½s	103	102½	103½	0
S. O. N. Y. 4½s	97¾	96⅝	96⅞	— ⅜
Transcontinental Oil 6½s war	101½	100	101	+1¼
Transcontinental Oil 6½s Ex-war	94¼	94¼	94¼	+ ¼
Union Oil of Calif. 6s A	108⅞	108½	108½	— ½
Union Oil of Calif. 5s C	100⅛	99¾	100	— ⅛
Warner-Quinlan 6s	87¾	84¼	87¾	+3¾
White Eagle Oil 5½s war.	103⅞	103	103⅞	+ ⅞

Oil Dividends

	Amount	Payable	Stock of Record
Cities Service m	2½c	May 1	Apr. 15
do stocks m	½%	May 1	Apr. 15
do pfd & BB m	50c	May 1	Apr. 15
do pref. B m	5c	May 1	Apr. 15
Darby Petroleum q	25c	Apr. 15	Mar. 31
Gulf Oil q	37½c	Apr. 1	Mar. 20
Indep. Oil & Gas q	50c	Apr. 30	Apr. 15
Indiana Pipe Line q	50c	May 15	Apr. 25
do extra	25c	May 15	Apr. 25
Lion Oil Refg. q	50c	Apr. 28	Mar. 27
Lone Star Gas q	25c	Mar. 31	Mar. 17
Louisiana Oil Refg. pfd. q	$1.62½	Mar. 15	May 1
Mountain & Gulf Oil q	2c	Apr. 15	Mar. 29
New Bradford Oil q	12½c	Apr. 15	Mar. 29
Shaffer Oil & Refg. pfd. q	$1.75	Apr. 25	Mar. 31